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# Board Mill Acquisition Plan Progressing

## Willets Pollock, of Milwaukee, Wis., Announces Purchase of Eighteen Box Board Units Representing Capacity of 300,000 Tons—Negotiations Taking Place for Purchase of Additional Units to Bring Production In Line With Estimated Annual Demand—Idea of Eliminating Excess Capacity Mills Originated by John Kieckhefer

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., May 22, 1933.—Efforts to bring the paper board industry out of chaotic and ruinous competition through the mill acquisition plan devised by leading manufacturers are meeting with good success, according to Willits Pollock, of Milwaukee, who has been wrestling with this problem. Eighteen box board units representing a capacity of 300,000 tons have been purchased thus far, representing a substantial part of the 2,000,000 tons of excess production capacity by which the industry has been harassed. Negotiations are in progress for the purchase of additional units in order to bring production in line with the estimated annual demand of 3,000,000 tons a year, based on the average of the last three years.

The idea of eliminating the excess capacity mills was originated by John Kieckhefer, president of the Kieckhefer Container Company, Milwaukee. He enlisted the co-operation of other leaders of the paper board group, including: John L. Barchard, president, Hummel & Downing; W. P. Paepcke, president of Container Corporation; E. V. Donaldson, Robert Gair Company; H. L. Rauch, Consolidated Paper Company; G. S. Otto, Alton Boxboard Company, and R. C. Cullen, president, Southern Kraft Corporation.

The paper board program is based on three main factors: (1) a census of the entire industry made with every company listed, output in tons noted and a check made of the percentage of time the machines in each mill run; (2) current reporting of the information, and (3) acquisition of plants, business and reorganization to allow fuller operation of fewer mills.

Mr. Pollock points out that the present running of the industry, amounting to some 54 per cent, is highly uneconomical. It requires relatively high prices for board to let a concern break even on this low running schedule. He figures the "penalty" between running at 54 per cent, or three days a week, and 100 per cent of capacity, or six days, amounts to about $6 a ton on a $30 article.

"Therefore," he says, "it is much more economical to shut down an entire mill and take the organization and business over into another mill so that the latter may run nearer capacity. This has already been done in many instances and while it has not invariably been the case that the old employees of the closed mill are given jobs in another, it has usually been worked out that way. Many mills are close to each other.

"Our program," Mr. Pollock explains further, "is to see if we can get the owners of the 3,000,000 tons of capacity either to merge with or buy out the plants producing the remaining 2,000,000 tons. That program would mean a saving to the industry in costs alone of at least $18,000,000 a year, and would enable it to adopt—as the industry already proposes—four six hour shifts daily.

The industry would like to see a 36-hour week put into effect for the peak season and a thirty for the slack season. Mr. Barchard has been one of the foremost supporters of the 6-hour shift and has used it in his mill for some time. The industry as a whole has approved the 6-hour day plan.

"The ideal of this plan," Mr. Pollock adds, "is to have 3,000,000 tons of capacity running full and the other 2,000,000 owned by the three and shut down until such time as conditions warrant reopening.

"The entire program contemplates that, without any radical increase in prices, the savings alone by this method will keep the men employed and enable running mills to pay for the mills they have taken over and at the same time to show a net profit.

"The feasibility of the plan has been thoroughly demonstrated during the last year, particularly by one mid-western mill which took over a neighboring company and, by running full, paid the latter its full shutdown expenses, employed a large part of its labor, paid its depreciation and on top of this earned a substantial profit. Both of these mills had lost heavily in 1931 at higher prices."

### News of the Industry

Although substantial gains in employment and payrolls were shown by the Wisconsin Industrial Commission in the period from March 15 to April 15, the paper and pulp mills showed a decrease of 1.5 per cent in total payrolls. The total factory employment for the state rose 2.1 per cent and the aggregate factory payrolls increased 6.5 per cent. The corresponding period in the years from 1929 to 1933 showed an average loss of 1 per cent in both employment and payrolls.

Kimberly-Clark Corporation, Neenah, Wis., declared its

*(Continued on page 23)*

# Paper Demand Continues to Expand In Boston

## Better Sentiment Generally Expressed by Both Paper Manufacturers and General Paper Merchants—Inquiries for Various Standard Grades of Paper Becoming More Persistent—Bonds, Ledgers and Fine Writing Papers Moving In Good Volume

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., May 22, 1933—Orders for paper received by Boston wholesalers continued to increase last week. Both manufacturers and jobbers made favorable statements in regard to business. The better feeling is sustained. There is more inquiry. Prices are holding well and furthermore there is a tendency all along the line to advance quotations, particularly in the lower grades of coated paper. At least one mill making coated paper is operating to capacity, which formerly was running only four days a week.

Some of the handlers of fine paper are complaining that small-sized orders are on the increase and that it is impossible to make a profit on sales of this kind. Even though a higher price is charged for broken lots, it is not sufficient to compensate for the extra expense of delivering local orders, such as for one ream, in various parts of the city. Bonds and ledgers, as well as fine writings, are moving well.

Wrapping paper is enjoying at least a spurt. No. 2 kraft has now definitely advanced an eighth of a cent, making the price .02¾ f. o. b. mill. Summer specialties, such as drinking cups, paper napkins, and paper towels, are active, in addition to the regular demand for these commodities which prevails throughout the year.

There is a fairly good demand for box board as a whole, and particularly for material for shoe cartons. At least one concern making shoe boxes is operating 24 hours a day. Prices hold firm and advances are anticipated.

### Paper Stock More Buoyant

Conditions in paper stock were still better last week than the previous week. Prices are firm in old papers. White blank news advanced to .90 @ .95, compared with a former quotation of .85 @ .90. A few days ago, the barge *Osceola,* Harris & Costello, charterers, left Boston for Philadelphia, with a cargo of 800 tons of waste paper. Advices received here say that mixed papers have strengthened considerably. The demand has increased.

Undoubtedly the Western situation is very serious, as it appears that the mills cannot get sufficient stock in the West to take care of their requirements. Within the last two weeks the Western mills have not only touched New York and Philadelphia, but are also having shipments made out of Boston and Buffalo. It is felt that in all probability this mixed paper situation will have its effect on the folded news market, as this grade of stock was sold at 50 cents to $1.00 higher than the previous week. Should mixed papers keep on increasing, in all probability news will advance accordingly, according to an opinion expressed in the trade.

The same advices state that the higher grades of stock, such as soft white shavings and hard white envelope cuttings are in the same condition as they have been in the last three months. They are very scarce, the demand exceeding the accumulation.

White blank news, which, up to recently was a drug on the market, to a certain extent, has been practically cleaned up on the A No. 1 quality stock. This, no doubt, is due to the fact that indications are pointing to higher prices on ground wood pulp. On all grades of paper stock containing mostly sulphite and ground wood, quotations are advancing, due to the possibility of increasing prices both on groundwood and unbleached sulphite as well as bleached sulphite.

### Rag Quotations Firmer

In rags there is a call for white stock or easily bleachable material, with prices tending to advance. Dealers are beginning to receive inquiries from the West for stock, but freight rates are high. In domestic rags, new white shirt cuttings have advanced to .03¾, f.o.b. Boston, compared with a former quotation of .03½. No. 1 roofing stock has risen to .50 @ .55, compared with .40 @ .45; No. 2 roofing stock to .45 @ .50, against .35 @ .40, and No. 3 roofing stock to .35 @ .40, against .25 @ .30. Among foreign rag advances are dark cottons, marked up to .80 @ 1.00 from .50 @ .60. There is a little disposition on the part of packers to boost prices, which is being met with resistance.

The twine market continues firm, with more buying. A mill representative here received an order during the week from a buyer who had not made any purchase from him for some time.

### News of the Trade

The last meeting of the season of the New England Paper Merchants Association was held Thursday evening in the Tap Room of the Hotel Touraine, with President F. Bendel Tracy in the chair. About 45 were present. Assistant Secretary Chester Spaulding, of the National Paper Trade Association of the United States, gave an address on the work of the National Industries Board, in its application to the merchandising of paper. There is a new drive on for membership in the association.

The Arnold-Roberts Company enjoys the distinction of having a complete stock of the papers of W. C. Hamilton & Sons, Inc., Miquon, Pa., not only in its Boston warehouse, but also in its other warehouses in New Haven, Augusta, Springfield and Providence. The lines include bond, ledger, writing, vellums, wedding, mimeograph, books, cover, text and offset.

The annual outing of the Boston Paper Trade Association is to be held June 12 at the Charles River Country Club.

The outing of the Boston Carton Credit and Research Bureau is to be held June 6 at the Vesper Country Club.

## Bartram Products Increase Exports

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., May 19, 1933.—Bartram Paper Products have decided to go after export business in paper bags on a much larger scale and are planning early construction of a $30,000 addition to their plant with this objective. Officials of the firm recently appeared before the Town Planning Committee of the Vancouver City Council seeking a fixed tax rate over a period of years. They claimed this was essential in order to reduce all possible overhead before proceeding with construction, as the export business was so highly competitive. The firm at present ships bags and other paper products to many parts of the world, but if the tax concession is approved the new plant will be erected in order to enable the development of this trade on a much more extensive scale. The company's new plant would be erected at Franklin street and Woodland Drive, Vancouver.

# Premier Opposes Power Export From Canada

## Although Quebec Legislature Recently Enacted Law Permitting Export of Hydro-Electric Power, Federal Government Refuses to Grant License—Prime Minister States Dominion Cannot Afford to Create Community Life In Another Country

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., May 22, 1933.—Possibility of a bitter controversy between the Quebec Government and the Federal Government of Canada over the question of exporting hydro-electric power from Quebec Province to the United States is seen by pronouncements on the subject made this week by the Prime Ministers of the two Governments.

It will be recalled that the Quebec Government recently reversed its attitude on the subject. Formerly it was opposed to the export of power, but in view of the large developments of power which have taken place and the falling off in the demand for power for industrial purposes during the past few years it recently enacted a law permitting the export of power up to a total of 300,000 h.p.

Speaking in the Federal Parliament a day or two ago, Premier Bennett remarked that it was the considered judgment of the federal government, "as at present advised" that they would not grant any licenses for the export of power. He added:

"We cannot afford to export power and create community life in another country with industrial activity and then, when the requirements of our own country call for cutting off the license for export, contemplate that situation without having regard to a statement made by a president of the United States that such action on our part would practically be considered an unfriendly act. Under those circumstances I make the statement that we shall not grant any such licenses for the purpose of relieving any doubt there may be in the minds of any honorable member that the government has in contemplation the granting of licenses for the export of power."

### The Position of Price Bros. & Co.

Following the foreclosure on the property of Price Bros. & Co., put into effect by the Bondholders Protective Committee, it is reported here that interest in a reorganization of this great paper and lumber concern has been shown by the Duke Price Power interests, International Paper and a group headed by R. O. Sweezey. The last named was the promoter of the Beauharnois Power enterprise and has for many years been prominent in the pulp and paper industry.

The present position of Price Bros. & Co. was brought about by failure to cover obligations in respect to a $11,000,000 bond issue, the creation of $3,750,000 of bank loans, and inability to meet current liabilities. It is recognized that the properties of the company are worth considerably more than represented by present obligations.

The properties of Price Bros. consist of two news print mills with a daily capacity of over 1,000 tons, several thousand square miles of timber limits, several sawmills, water power developments, etc. Under more normal conditions these properties have displayed a substantial earning power.

The Duke Price Power Company is interested in the outcome because Price Bros. & Co. provided one of its most important sources of revenue through a contract by which the latter company undertook to purchase 100,000 h.p. of electric energy annually, at a cost of between $800,000 and $900,000 a year.

### Lake St. John Dispute Adjusted

The Bondholders' and Debentureholders' Committees of the Lake St. John Power and Paper Company have issued a joint report stating that they have been successful in adjusting a dispute with the Quebec government regarding unpaid claims under agreements made at the time of purchase of timber limits and in retaining all the company's assets on a basis of making a cash payment of $300,000 to the Provincial Treasury, which amount in the opinion of the Committees was a settlement favorable to the Company and represented a compromise of the total amount claimed by the Government.

The Committees were also successful in securing a postponement for a period of ten years of certain development work covered by the agreement with the Government, thereby saving large capital expense and consequent carrying and operation charges.

Due to above settlement the relations between the Government of the Province of Quebec and the company have been placed on an harmonious basis.

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## Mead Co. Removes to Chillicothe

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, May 22, 1933—The Mead Pulp and Paper Company removed its principal offices from this city to Chillicothe, Ohio, recently, the transfer having been made for two reasons—to get closer to the operating departments and to effect economies of a substantial nature.

The Mead Corporation, which maintained offices in the City National building, Third and Main streets, has been a fixture in this city for many years. George H. Mead, president of the Corporation, is a resident of this city, and he with several other officials, will continue to make this city their home.

Most of the officials reside in Oakwood, the little city of handsome homes, just to the south of Dayton (in fact so slightly south that the end of one city and the beginning of another is not discernible except by a sign) and will continue to live there, with the exception of Speed Warren, treasurer of the Corporation. Mr. Warren this week relinquished his duties as Treasurer of the City of Oakwood.

Mr. Mead will continue to live in Oakwood as will R. T. Houck, vice-president.

The Mead Corporation was organized January 24, 1930, with a capital of 1,000,000 shares. Besides the officials above named are C. H. VanderCarr and Sydney Ferguson, vice-presidents; Alan G. Goldsmith, stcretary; and R. E. Cowden and R. K. Landis, assistant secretaries.

Virtually all of the office force and clerical help will be located in Chillicothe, which is in Ross County—the bailiwick of rugged hills. The Mead plants, formerly located on Front street, East Dayton, were removed to that city many years ago. The corporation has occupied the entire eleventh floor of the City National Bank Building.

Other companies such as the Mead Investment Company, the Mead Sales Company, the G. H. Mead Company and the Mead Paper Board Company, as well as a mill equipment and engineering company, have their offices on various flors of the City National Bank building.

Mr. Mead will continue to have an office in Dayton but will be in constant touch with the Chillicothe offices.

# Paper Business Slightly Better In Ontario

## Volume of Sales Reported Distinctly Heavier During Current Month -- While Manufacturing Activities Are Still Curtailed, Outlook for Future Is Gradually Brightening—Spotty Conditions Prevail In Both Fine and Coarse Paper Markets

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., May 22, 1933—The paper trade in Ontario is participating in slightly better business conditions that are beginning to show themselves throughout the province. There has been a distinct improvement in wholesale paper sales during the month that is about to close and while individual sales are still of the small order variety the total for the month promises to be greater than for any month during the past year. This applies chiefly to fine papers, although coarse papers have benefited to some smaller extent. Most paper merchants feel that better business is now definitely in sight and with the start already made has come a much better tone to the paper market. It is known that many catalog and direct advertising campaigns are holding back pending a more definite trend to business and when these are released shortly both the paper merchants and the printers will be cheered by bigger volume selling.

Mill activity as yet has felt no stimulating influence and most of the plants are still operating short time. It is believed, however, that the manufacturing end of the paper industry is due for betterment and there is a feeling that the worst of the depression is over. Fine paper mills are finding things slightly better but the improvement is hardly perceptible as yet and requisitions for both fine and coarse paper indicate a more or less spotty condition.

### Fiber Board Container Plant Started

Operations have now been commenced at the fiber board container plant of Pacific Mills, Ltd., at Vancouver, B. C. This plant has just been erected on the Vancouver industrial waterfront and is really a wing of the paper converting plant erected by the firm at Vancouver three years ago. In addition to the new building and machinery at this plant, installation of auxiliary machinery was necessary at the company's pulp and paper mill at Ocean Falls, where the first stages of production are undertaken on the fiber board. The new wing at Vancouver is 55 feet by 135 feet and is two stories high. It is of reinforced concrete construction with steel truss roof. Adjoining the plant is property for future expansion and with this in view the structural steel has been stubbed out of the walls in readiness to join the second unit.

When this further unit is completed the plant will be capable of supplying a volume of 2,000,000 fiber cases to canneries in British Columbia. The paper processing plant completed two years ago, and connected with the fiber board box wing, is at present using the lower floor of the addition for storage of its crepe, toilet papers, towels, napkins, plain and printed wax wrappers, and fruit wrappers. When production increases, however, the lower floor of the unit will be used exclusively for storage and shipping of fiberboard cartons. The initial order received by the plant was from its nearest neighbors, the British Columbia Sugar Refinery, who placed a contract for 40,000 cartons in various sizes. The second order called for 10,000 salmon cartons, and the plant is also producing 7,000 cartons for use of the paper converting plant of the firm.

### Inspected Paper Box Plants

A. P. Costigane, secretary-engineer of the Ontario Pulp and Paper Makers' Safety Association, has returned to Toronto after a visit of inspection to paper box and container manufacturing plants in Hamilton, London and Windsor in Western Ontario. The plants visited were: Corrugating and Containers, Ltd., E. Pullan, Ltd., Ste. Vincent de Paul and Waste Paper Bureau, Hamilton; High Grade Corrugated Products, Ltd., London Shipping Containers, Ltd., E. B. Eddy Company, Ltd., London, Ont., and Canadian Containers, Ltd., Windsor. Mr. Costigane states that these firms, with one or two exceptions, are conforming to the rules and regulations governing factories as issued by the Workmen's Compensation Board. Practically all of the plants are in good shape as far as fire hazards, fighting equipment, and house keeping are concerned.

### Reorganization Making Progress

Definite progress has been made in the reorganization of the Lake St. John Power and Paper Company, according to the first interim report of the bondholders committee just issued by D. H. McDougall, Toronto, and A. Stewart McNichols, of Montreal, respective chairmen. A dispute with the Quebec Government due to unpaid claims has been settled by undertaking to make a cash payment of $300,000 to the Government. Certain overdue development work has been postponed for ten years. Bond holders and debenture holders are appointed to the board of directors under a new agreement, and funds to meet the debt to the Government will be provided through a prior lien mortgage. The output for the sale of news print has been improved by the pick-up in business in the United States, the report says.

### Hinde & Dauch Had Good Quarter

Some improvement in earnings is reported for the Hinde & Dauch Paper Company of Canada during the first quarter of 1933 in comparison with the loss of $28,000 experienced in the first three months of 1932 and loss of $108,000 in the first period of 1931, after provision for depreciation and bond interest. It was learned at the head office in Toronto that prospects are that bond interest and depreciation will be covered in 1933. With increased prices on paper board produced in Canada not yet in sight, profit of Canadian producers is dependent upon volume and low cost of production. At the present time prices are but slightly above the 1931 level, with liner board selling at $42.50 per tion, a rate which has been in effect since June, 1931. The average price during the past ten years has been about $60 a ton. Production of fiber containers in Canada was valued at $6,000,000 in 1931, dropped to $4,000,000 in 1932, and was on an annual basis of $4,000,000 in the first quarter of 1933. Competition for the reduced volume of business has severely affected most operators in the industry. Volume of business done by Hinde & Dauch Company has been well maintained and the box board end of the business developed late in 1932 is beginning to show some return, with the machine operating at full capacity.

## Corinth Mill Adds Men

CORINTH, N. Y., May 22, 1933—An increase in operations at the Corinth mill of the International Paper Company this week has given employment to about 30 men who were laid off several months ago. The entire plant is now in operation which means a great improvement in industrial conditions in the community.

# Demand for Paper Gains Slowly In Chicago

## Fine Paper Market Continues Steady, With Volume of Business Transactions Broadening—Improved Position of Sulphite Bond Section Well Maintained—Book and Cover Papers Practically Unchanged—Kraft Wrapping Paper Division More Active

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., May 22, 1933—Chicago paper markets went through another week of slow but gratifying progress. The opening of the Century of Progress Exposition and resultant merchandising events have had a stimulating effect on general business here and the benefits are now reaching out into wholesale and manufacturing channels. Markets have been, for the most part, steady and increases in demand have been reported. The kraft market continued its improvement and reports indicate a strengthening of the toilet and tissue markets as well. Fine paper had a good week, the underlying market structure remaining steady and demand volume increasing over a wider territory. Sulphite bonds held their improved position, according to reports. Books and covers remained about the same during the week. The paper board market continues to react favorably to business conditions, demand for new uses of paper board helping materially in the upward swing. Waste papers reflected the betterment by a slightly stimulated activity. Mentally, the paper executives in the Chicago market feel much better and more optimistic for a continued rise in demand that will even wipe out the usually expected summer lull.

### United Container Association to Meet

The United Container Association will hold its regular bi-monthly meeting at the Congress Hotel, May 23 and 24. E. E. Scharff, president of the Scharff-Koken Manufacturing Company; and W. D. Lane, president, Eggerss-O'Flyng Company, are two of the speakers. The former will discuss "Recent Economic Developments As They Affect Our Industry," and the latter, "How Can We Create A Better Competitive Spirit?" Sessions will be held on Tuesday, May 23, for the following committees, beginning at 9:30 A.M.—Membership, Traffic, Standardization, Cost and Statistical and Executive. On the following day a general meeting will be held in the morning, followed by a luncheon and forum discussion beginning at 1 o'clock.

### Chicago Paper Association's Activities

M. A. McNulty, McNulty Paper and Twine Company, will preside at the next regular meeting of the Chicago Paper Association scheduled for Tuesday evening, May 23, at the Bismarck Hotel. Mr. McNulty expects the improved kraft market to be the chief topic for discussion. He reports that definite strengthening of the toilet and tissue markets will also create much favorable comment. The association will also probably complete details for the refunding of money collected under the 3 per cent Illinois Sales Tax which has been declared unconstitutional.

### New Sales Tax Bill Drafted

Rumblings from Springfield indicate that the paper industry will soon have another sales tax to worry about, if Administration plans for another Illinois sales tax carry through. The new bill has been drafted calling for virtually the same provisions as the one recently declared unconstitutional—except that the tax may be 2 instead of 3 per cent. However, it is rather reliably reported that the tax will not be a retail over-the-counter tax but definitely an ultimate consumers tax which, of course, will seriously affect paper wholesalers and manufacturers, as well as retailers in Illinois. The danger comes from heavy loss of business caused by the buying of merchandise outside the borders of the State to escape the Illinois tax. Even under the restraining injunction—and as construed by a number of manufacturers—thousands of dollars worth of business went out of the State because of efforts to evade payment of the tax on the part of purchasers for manufacturers, large wholesale and retail concerns, etc. The new tax—as an ultimate consumer tax—therefore presents some very grave problems to Illinois industry unless it is finally defined as an ordinary retail over-the-counter tax.

### Salesmen's Golf Season Opens

Blessed with some good weather that surprisingly stuck its head out, the Middle West Division of the Salesmen's Association of the Paper Industry blasted open the first of the summer series of golf tournaments on Friday, May 19, with an encouraging turnout over the sporty Bob-O-Link Golf Club course in Chicago. Under the guiding hand of Golf Chairman Bill Tilden, the salesmen enjoyed one of those always pleasant lunches, paired off for plenty of afternoon golf and wound up the proceedings with a delightful evening dinner. The singing, always a feature of these tapering off events, was in no wise dimmed by the events of the past eight months and the salesmen took up their caroling right where they left off last October. About 40 attended the opener of the season.

### Resource Bond

An attractive four page folder describing the qualities of Resource Bond has recently been issued by the manufacturer, Gilbert Paper Company, and distributed in Chicago through its local distributors, the Dwight Bros. Paper Company. The folder carries the enticing first page caption of "A necessity yet a luxury of your business life." The inside pages are devoted to a discussion of the utility, price, texture and appearance qualities of Resource Bond. The paper is made in regular and cockle finishes and also laid, in all standard sizes and weights. Nine shades complete the color range. Dwight Bros. Paper Company has also issued an All-Wave channel and station finder for radio enthusiasts giving the chief broadcast of local, Canada, Mexico, Cuba and Foreign divisions and principal short wave information.

### Changes in Warren Line

Chicago distributors of the S. D. Warren line have announced the elimination of four of the Warren Line for simplification purposes. The four are Olympic Gloss Coated Book; Library Super Plate; Library Text; English Finish; and Cumberland Eggshell. Also comes the explanation that "In Warren coated papers the improvements in New England Gloss have been carried to a point where the resulting quality approximates the quality of Olympic Gloss, thus causing the elimination of Olympic Gloss. The improvements in plain papers have brought low-priced papers into the quality class of higher-priced papers. The sensible procedure was to merge grades. Library Super has been merged with Cumberland Super; Library Text with Cumberland English Finish; and Cumberland Eggshell with New England Eggshell."

# Co-Operative Spirit Grows in Philadelphia

## Interest Shown In Proposed National Industrial Recovery Act Gives Impetus to Trade Association Activities—More Than Seasonal Gain Experienced In Paper Trading, Indicating Upward Trend—Kraft Wrapping Paper Prices Advance

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., May 22,1933—Maintenance of increased business which early May ushered in; some slight increase and gratifying rise in paper stock and in the manufactured product, but more important in the long run than all of these—the really tremendous growth in the co-operative and organization spirit, so essential to the best interest not only of those in the trade but to their customers equally—were the outstanding developments of a week to an accompaniment of optimism almost bordering on the enthusiastic.

With the acquisition of ten coarse paper houses to the Philadelphia Paper Trade Association, and success in view for securing perhaps less than a half dozen of the leading firms, the Philadelphia Paper Trade Association is now better organized—more comprehensively and more enthusiastically—than ever in its long history. And moreover economic legislation afoot in Washington, particularly as relates to the pending National Industrial Recovery Act, has given impetus to the revival of activity of the Philadelphia Waste Paper Dealers' Association, such as it has not had in the last decade.

### Trend is Upward

Early May, as reported in these columns, saw some recovery from the slight fall-off suffered during April, which was regretted because March had raised high hopes. However, the May gain has been enough more than seasonal to indicate that the trend is upward: as illustration; Garrett Buchanan Company reports May business up to the close of last week as being just 22 per cent in advance of that for the corresponding weeks of April, and of 18 per cent over the March record for a similar period. Other leading jobbers in both branches of the industry report a practically similar experience.

The new kraft prices appeared during the week and were generally up about $2.50 each ton. In this line of price recovery it is to be noted that a number of book paper houses have informed the jobbers that prices for merchants' stock must be those which prevail at the time of shipment; in other words, present prices cannot be guaranteed against the future. Since the beginning of Spring, book prices generally have advanced about $5.00 a ton.

### Paper Trade Association Expands

In these columns some months ago, there was reported the informal organization of what was declared to be an anonymous body of wrapping paper folks drawn together for mutual interest. It now develops that the purpose of this skeleton organization was to informally give those invited to participate, an opportunity for the thorough study of the operations and accomplishments of the Philadelphia Paper Trade Association, which for a long time has had a more or less representative wrapping paper division. This anonymous group met during the week and formally decided to join both the Philadelphia Paper Trade Association and the National Association. Those who have already taken membership are the Dee Paper Company, Diamond Paper Company, The Enterprise Paper Company, The Mather Paper Company, Paper Manufacturers Company, Progress Paper Company, Saxe Paper Company, Schwartz and Company, Wilder Brothers and B. Kessler. There are in prospect for membership not more than six other outstanding firms, and then the list will be complete. With this acquisition there are now in the Philadelphia Paper Trade Association some thirty firms and, of course, this is thoroughly representative of the Philadelphia jobbers in their best estate.

Meanwhile the members of the association individually however, and others are interesting themselves in the proposed National Industry Recovery Act, otherwise known as Senate Bill 1712, introduced by Senator Wagner of New York, and a tentative draft has been in circulation. This Act itself contemplates complete control of industry through a National Board similar to the War Industrial Board. It will remedy restrictions of the Anti-Trust Laws and the Federal Trade Commission Act and will empower a National Board to designate any industry as one affected with a "public interest." Its provisions will permit under government supervision, price fixing during the period of emergency, and a plan of self organization of industry through trade associations, and, therefore, it is believed will stabilize industry, increase employment and enlarge purchasing power.

### Receives Endorsement

President Hentz of the Paper Trade Association has received from its members and others virtual unanimous endorsement of the Act as a whole, although, of course, in the tentative draft, which has been circulated, some of its provisions are looked upon as affording opportunity for modification. Meanwhile, in carrying out the purpose of the association, President Hentz has appointed a committee on Book Paper Trade Customs, of which George Weaver, of the Garrett-Buchanan Company, will be chairman; and his associates, Thomas J. Hare, of the Atlantic Paper Company; R. D. Perry, of D. L. Ward Company; and William Wilcox, of the Wilcox-Walter-Furlong Paper Company. President Hentz announced that it is the responsibility of this committee to interpret the new book paper trade customs from their angle, so that there will be no question about their operation; and to determine how the freight situation will be handled.

### Paper and Cordage Association Meets

The Paper and Cordage Association of Philadelphia held its regular monthly meeting on Friday last in the Ivory Room of the Adelphia Hotel, and while a representative group was present, desire to secure attendance of more salesmen was expressed. Definite plans were formulated for the combined monthly meeting and outing at the Bankers Country Club, Ambler, Pa., on June 16. H. S. Platt, district manager of the Denney Tag Company, was appointed secretary, in place of William V. Edkins, whose resignation was accepted with regret. A new membership enrolled was that of Thomas C. Ingling, of C. A. Bossler, 306 New street. It was pointed out that it is not only mutually and spiritually profitable for salesmen members to attend these luncheons but financially as well, because frequently deals have been made which have resulted in profit sufficient to pay dues for years to come.

# The Heavily Ribbed Castings of DE LAVAL WORM GEARS

keep grit and moisture out and lubricating oil in.

They also hold the worm, the worm wheel and the bearings in perfect alignment, providing ample strength to sustain the maximum stresses and to carry heavy loads.

De Laval Worm Gears are the most simple, compact and reliable means for connecting standard speed or high speed motors to slow or moderate speed machinery.

They are immune to dirt, grit or moisture and, being self-lubricating, require practically no attention.

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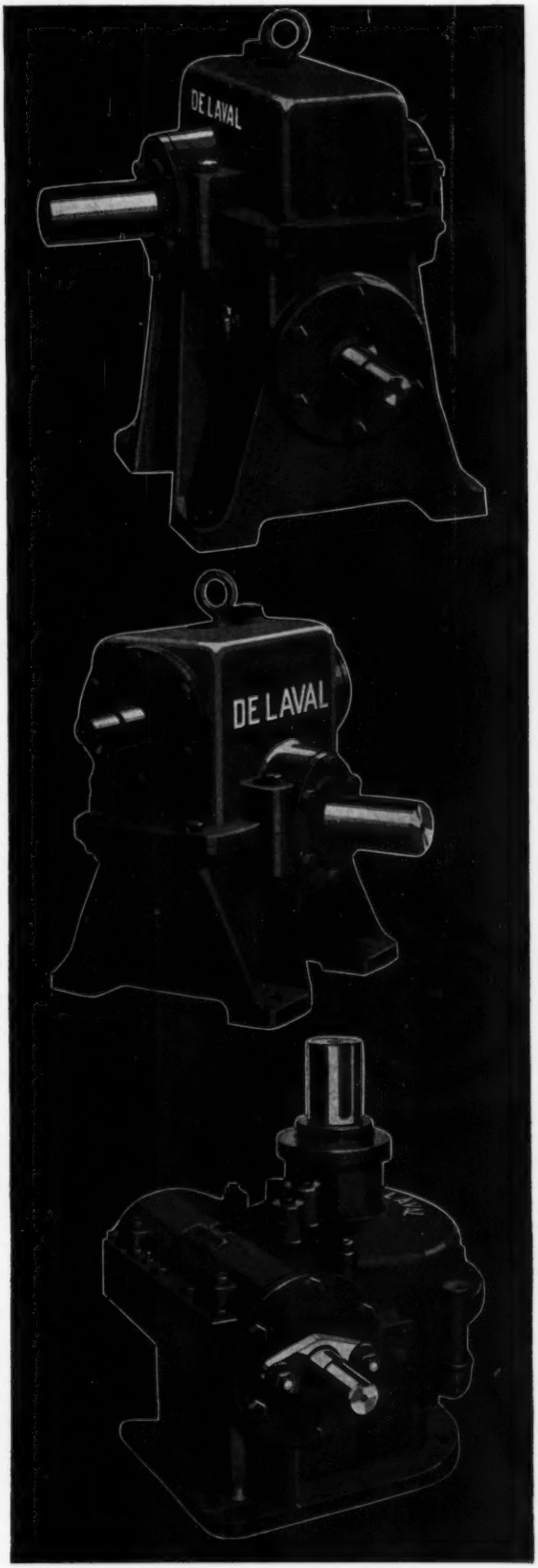
## DE LAVAL STEAM TURBINE CO.

*Trenton, New Jersey*

1077



# Regional Competition in Pulpwood With Special Reference to the South*

By Charles W. Boyce[1]

We have assembled at the invitation of Dr. Herty to consider the technical possibilities of southern woods in paper manufacture. Mr. MacNaughton and Mr. Allen have ably described the accomplishments of a little more than a year's concentrated work in this field. None of us may doubt the value of this work. Dr. Herty and his staff deserve high praise. Important as this accomplishment is, however, it is not the whole story. What about the economic possibilities of putting to work the knowledge gained by research? That is a rather important consideration in this era of economic thought.

It is not entirely clear why Dr. Herty has asked me to talk on this subject. There have been times when I have intimated that the economic possibilities of a white paper industy in the South were shrouded in doubt. In fact, I have expressed the opinion that the whole white paper industry is one that possesses rather limited possibilities of expansion. And I am thoroughly convinced that the North American industry is tremendously over-expanded in the white paper field at the present time. In fact, it frequently seems that Dr. Herty, has attempted an almost impossible task to break into this already overcrowded field with a new type of product, especially at a time when the normally intense competition is unbelievably intensified by the liquidation of companies in receivership.

But Dr. Herty is a brave man; he has advanced his work in the face of all sorts of discouragements. Our presence today indicates how well he has succeded. But surely, Dr. Herty did not realize the risk of asking an outsider to appear on this program which involves further expansion of paper production. On the other hand, perhaps he did. Perhaps he knows that the South as a wood-producing territory and as an industrial potentiality can stand on its own feet. Perhaps he welcomed the opportunity to exhibit the South as a target, having faith in its fundamental richness in resources and ingenuity. Upon reflection I am convinced that he has followed a sound principle and that his purpose is laudable. But his judgment may be questioned: Why did he pick on me?

### Industry in State of Flow

The North American paper industry is today, and for that matter has been for some time, in a state of flow. It is no static industry; it is intensely dynamic. Consider what has taken place in the South and in the West. Consider the industry's growth in Canada, in Europe and in every country whose national consciousness stirs to the march of progress. Consider the shifting events of the past three years. Analyze our wood pulp situation. What does the shift from Canada mean? What are the significances of our concentrated demand upon the countries of northern Europe where production spurred on by a new nationalism, by a struggle to liquidate resources and to achieve financial independence through wood pulp exports, encroaches upon the possibilities of utilizing our own resources. Consider the news print tangle; demoralized production, huge financial losses, sickening prices, catastrophe that overruns the boundaries of the industry and that threaten the stability of governments. Surely, this industry of ours is not static! But we may wonder whether its dynamic characteristics are positive or negative.

We stand today in a "no man's land" between the old and the new. During the 1920's the new in our industry advanced rapidly. Its competitive power forged ahead; but its threat was clouded in a vast upward sweep of consumption in which there was then room for all. But now the tide has turned; consumption flows in the reverse direction. Upon the exposed beach, as it were, not one but thousands of battles are raging in which all nations intent upon retaining their stake in the American sector, are drawn with a varied assortment of weapons: dumping, depreciated currencies, subsidy, and what not. These, naturally, inspire our own nationals to combat.

The paper industry possessing attributes of rock-ribbed stability has become shot through with uncertainty. But its spirit to adjust itself to a new era is strong. The number that have come to see Dr. Herty's accomplishment are evidence enough that through all the gloom and the uncertainty, the industry now seeks new sources of fundamental strength. Some of us may be skeptical, but none of us may safely pass over these accomplishments. We are down to brass tacks at last.

### Expansion Must be Fitted to Needs

The war-like metaphor is not paraded for rhetorical effect; its intent is to caution. Grant the possibilities that success in commercial application of these researches may equal that of the researches themselves, grant a superiority of product and an advantage in cost, there may yet be reason for delay in development. For the old in the industry is by no means willing to concede the battle. Viewed individually there are tremendous elements of power in it. Its names are known, its products have withstood the test of varied conditions of use, and its resources and market connections may not safely be reckoned as obsolete. Age in paper manufacture implies no lack of vitality.

For instance, in 1913 the newspaper publishers established the second element in their bi-purpose program of free speech and free paper. There followed a rapid shift of news print production to Canada. Many domestic manufacturers who had not planned integrated operation were forced to shift to other grades. But many had had the foresight to lay out their operations upon a sounder basis, and they have continued news print manufacture. The development in Canada stimulated by unlimited governmental liquidation of forest and power rights, outdistanced all possibilities of sale. Competition became more and more intense. Depreciated currencies came along to break price levels. Consumption shrunk. Producers approached bankruptcy; they passed through it. Competition because unbelievably intense. But our domestic news print industry is still carrying on; it actually manufactured in 1932 its normal share of the national consumption.

Again for instance, in the 1920's the Southern kraft industry rose from obscurity to a position of domination

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* Paper presented on May 1, 1933, at the Savannah, Georgia meeting of paper mill representatives under the auspices of the Georgia Forestry Association.

[1] Executive Secretary American Paper and Pulp Association.

in the wrapping paper field. It competed for and got increased tonnage in the years of growing consumption. Its financial success was assured; its market connections were solidly based upon a tonnage demand and a reasonable price. Then came the trade battle in which every known weapon of commercial warfare was unsheathed. The new and the old dug in. To date neither have won, but all have been weakened to the verge of incapacity.

### Bearing on Future Developments

I dwell on these instances because of their bearing upon the future developments in the South and in other regions. Growth must be fitted to the needs. Merely because production costs may seem to be overwhelmingly favorable, there are yet to be considered other elements that have proven surprisingly powerful when forced under the pressure of necessity. In the paper industry there are no easy battles. With obvious advantages at one time or another, the Canadian news print industry, the West Coast sulphite manufacturers, the Southern kraft industry and even the producers in depreciated currency countries, now realize the competitive temper of those who founded this industry and whose spirit still carries on. Again I say there are no easy battles in the paper industry.

The South possesses a really tremendous supply of wood suitable for use in pulp manufacture. A vast area extending in a broad belt from Virginia round the Cost to Texas supports stands of pine interspersed with hardwoods, that vary from scattered clumps to fully stocked areas of second growth and virgin timber. Although the Southern pines are utilized in large quantities in lumber, the supply of pulpwood, the younger and in many cases the thinner stands, are amply adequate; they could easily furnish the total United States pulpwood requirements, were the industry in a position to use them.

Woods operations in the South are possible upon a year long basis, and storage at the mill is reduced to a minimum. The forests are easily accessible, there are no difficult mountains over which wood must be hauled. Woods labor seems to be adequate and rates of pay are traditionally low. These and other factors give the Southern producer a substantial advantage in wood costs delivered at the mill. This advantage, however, cannot be realized if the shipping costs of finished products from the mill to points of large consumption are greater than from other regions of supply.

### Comparison of Shipping Charges

Comparison of shipping charges from different regions shows that in the New York territory, the Atlantic Coast States with rates varying from $5 in Virginia to $10 per ton in Florida, averaging around $7.50 per ton for the region, are about $2.50 per ton greater than those from Maine and perhaps as much as $4.00 greater than those from New York State. Translating this difference into terms of pulpwood costs leaves a spread of from $1. to $2. per cord in average wood costs. If, therefore, comparable products can be manufactured from the Southern woods upon a competitive basis, the freight differential permits a greater pulpwood cost in New England and New York of about $2 per cord. The actual spread in prices is today about twice this figure. The spread between freight rates on products from the far South, Louisiana and Texas, on the other hand and on comparable products from New England both delivered in New York amounts to about $4.00 per cord which is practically the present difference between F.O.B. mill wood costs in the two regions.

In the Chicago territory present transportation charges on paper from the far South are twice those from the Wisconsin mills, or approximately $2.50 per cord when related back to wood costs. The present spread in pulpwood costs is but slightly greater.

In the 1920's, regional F.O.B. mill costs showed far greater spreads than these. Then the Southern producer possessed a marked advantage in costs. Today's advantage has been reduced to practically nothing in the complicated competition in which depreciated currencies have played a powerful role.

If this analysis is correct we have achieved what amounts to regional balance in pulpwood; F.O.B. mill prices plus freight charges on finished products to large consuming points add to a figure that at the moment shows no great advantage for any one region. The establishment of such a balance was bound to occur as the use of wood for pulp manufacture expanded to a wider range of species and to different regions; it was brought about quickly, however, by the sudden reduction in paper consumption and by the disastrous competition of oversea's pulp with advantage of depreciated currencies. The achievement of the balance means a great deal to the newer regions for many companies in the older regions which have been operating on purchased wood shipped long distances cannot continue to operate. And it is obvious that new production is quite impossible in the older regions. These regions cannot maintain comparable wood costs except by reduction of demand upon nearby wood. This means that from one to two million tons in ground wood and sulphite production in the older regions must shift to other regions or to other countries.

### The South's Competition

The two regions in the United States that possess wood in sufficient quantities to forge ahead in integrated pulp and paper production are the South and the Pacific Coast states. The direct competition between them is today relatively insignificant; but as Western production grows and as Southern manufacture spreads to papers other than kraft, the competition is bound to increase. The conditions of wood supply are widely divergent. The species are different, the sizes are different and the conditions of operation are now not comparable. But these differences mean little in terms of wood costs, for the cost of wood waste and cull hemlock logs in the west is but slightly more today than wood costs in the South. And the Western producer can ship his product to Atlantic Coast territories at about the same cost as the rail rates from the South. This competition is the one with which the Southern producer must reckon the most carefully, for it tends to be headed into mass production of white and semi-bleached papers, a field which the South is about to enter. The West possesses the outstanding immediate advantage of being already in the field.

It has been pointed out that the Canadian news print manufacturing belt and the Southern pine belt are about equidistant from the east-west strip through the north central United States where news print consumption is the greatest. This means in a rough way that transportation charges approximately balance, which is probably true in fact. Assuming that manufacturing costs balance, of which there is some possibility, the South's advantage must be in its wood costs. That there is an advantage to the South is easily apparent. It is enough to bring about a gradual shift of production under normal conditions. But the fact must not be overlooked, that the Canadian industry is slowly but irresistibly going through the wringer. Not only the water is being squeezed out, but the whole capital structure is undergoing a squeezing process that will have a marked influence upon costs. It is doubtful if the Canadian mills could be duplicated in the south at any thing like the figure that will be set up as

capitalization when the squeezing process is completed. This is a factor that must be reckoned with.

There is, moreover, cause to consider oversea's imports. It was rumored in New York last week that some European producers were offering five year news print contracts at eight dollars under the domestic price whatever that might be. Although the tonnages available are not great, such prices are bound to influence the news print contract price in some way. Furthermore, the British tariffs and the determination of France to produce its own news print makes available a rather larger tonnage for American shipment.

I do not view the wood pulp situation as entirely hopeless for domestic producers when currencies are equalized. The frightful pressure of the depreciated currency competition has forced the American industry to adopt economies in manufacture that have actually strengthened its position. Before 1930 domestic pulp production was growing more rapidly than were importations. There is no reason why this trend will not be resumed and this may mean an opportunity for Southern development if sulphite pulps or suitable substitutes can be produced. There is no doubt in the kraft field, that has been demonstrated even under adverse conditions; but the way is not entirely clear in other pulps.

**Stabilization of Political and Economic Conditions**

Even though the way ahead is by no means easy, the nation looks to the South and the Pacific Coast states to bring back within the national boundaries the opportunity for resource, capital and labor utilization that we now lose to importers. Moreover, the American paper industry looks in the same direction for freedom from the intrusion of outside political and economic influences that have three times in the past two decades wiped out the stability that should belong to the industry by virtue of its diversification and character of product.

We cannot justly blame our foreign competitors for all our woes; that would be grossly unfair. But we do know from experience that our chances of instability are increased as the number and variety of political and economic elements become greater. Under pressure of trade wars fluctuations in tariffs and in international financial and political relationships threaten not only our industry but our national prosperity.

We may not quarrel violently with Canada, for we have demonstrated a need for her spruce pulp products, and Canada has demonstrated to us a surprising resistance to external influences; in fact, we may believe that the political and economic welfare of Canada varies in direct relationship to our own. But we may quarrel with the Northern European countries whose conditions of manufacture and relationships of political and economic balance are quite without the range of our own commercial power.

Furthermore, it is in our own benefit to built up within our own sphere of influence sources of supply that are subject to the same trade conditions that govern our consumption. If this may be done by competitive means alone, so much the better—and it may not be an impossible job to the South and the Pacific Northwest. But until that competitive ability is demonstrated or until governmental measures are undertaken to encourage it, we must not mistake the competitive power of our foreign suppliers. Behind any governmental measures that may be taken, however, lies an internal competition that is at this moment our chief consideration.

**Competitive Possibilities of the South**

Any significant development of the pulp and paper industry in the South must greatly exceed the requirements of the regions. According to figures presented to the Interstate Commerce Commission, the total normal news print consumption in the nine southern states bordering on the Atlantic Ocean and the Gulf of Mexico amounts to but 225,000 tons a year, barely six per cent of the national total. Were the South able to compete with outside suppliers, there would be room for but two modern mills. The centralization itself, moreover, would handicap the competition for all business. There is no narrowly restricted demand that would give to a single modern plant an outstanding freight advantage. If news print is to be manufactured in the South and if its manufacture is to be significant in Southern industry, it must compete in the nation's larger markets, in that band of consumption some 250 miles wide from New York and Baltimore on the East to Chicago and St. Louis on the West, a band that is about equidistant between the Canadian band of production on the North and the Southern pine belt on the South.

The same conditions hold in other papers; Southern consumption is not now sufficient to warrant mill construction, except possibly for demonstration purposes. The South must compete with other regions and in many cases with mills more favorably located. The Southern kraft industry is an excellent example. Its development amounted to nothing until Southern kraft papers had become established in the larger consuming markets. When this was accomplished, the South had an industry of important dimensions and the country had a sufficiency of wrapping papers at low prices. Can this feat be accomplished in news print, in book papers, in the host of so-called sulphite specialities and bonds?

**Shifts in Pulpwood Use**

I have spoken now and before of the dynamic character of the industry. It is expressed in regional expansion. Research leads the way, and commercial practice follows close behind. The dim possibilities of today become the concentrated competitive actualities of tomorrow. Why? Because our research is discovering that pulpwood is pulpwood regardless of species.

From the discovery of the wood pulping processes to the World War, the paper industry was essentially a spruce industry. Ground wood and sulphite pulps for news print, book paper, wood writings, and a host of wrapping papers and board specialities required spruce. The use of other pulpwoods had not increased rapidly and the development of the sulphate process had nearly begun.

Then came the boom years of the 1920's and the paper industry responded in a combined research and commercial development that is by no means an insignificant chapter in American industrial history. The United States did not then have, nor had it ever possessed a large supply of spruce. But the industry arose above this handicap; it increased its use of hemlock in the Lake States; it developed the kraft industry to use jack pine as well as other species in the Lake States and the Southern pines in the South; it discovered the possibilities of the Western hemlock fibers and a remarkable development of pulp production has occurred in the West. After a decade of development we find the American pulp industry actually using less spruce than before in spite of the fact that its pulpwood consumption had increased 30 per cent. It is true that our imports of spruce pulps and papers have increased; but this detracts but little from the significance of the shift to other woods.

**Balance in Pulpwood Prices**

The change in raw material base brought about far reaching shifts in the relationships of regional production, which combined with the import situation put spruce under

a tremendous deflationary pressure. Right now spruce is thoroughly deflated; it is stripped of its heretofore preferred values as a pulp material. The regional pulp cost differentials that existed up to 1930 are now entirely upon a basis of cost in which there is no allowance for quality. Today, the price of spruce pulpwood is not $6. or $8. per cord delivered at the mill because it is spruce; it is that cost because wages and the expense of transportation add up to that figure. The same condition holds for other woods. For the first time in history our regional competition in pulpwood is down to a cost basis.

I do not wish to imply that today's regional differentials in pulpwood prices are permanent. I do not mean that if the price of Southern pulpwood delivered at the mill is placed at 100, the price of spruce pulpwood in Maine will always be 200 and in the Lake States 175, or that the cost of pulpwood in the Pacific Coast States will be 125. Technical development has not yet destroyed the differential in the suitability of different woods for paper manufacture. But I do believe that these differentials will never again become as important as they have been.

**Southern Possibilities in American Forestry**

Much has been written and said concerning forest growth in the South and the possibilities of sustained yield operation, whereby forest ownership may be safely kept at a minimum and transportation charges may be stabilized. This is a very distinct possibility and one that no company planing long continued operations can afford to overlook. In the South timber does grow rapidly, but it is important to consider growth from the mass viewpoint rather than from the viewpoint of individual trees, for paper manufacture requires mass. In this respect the South has a formidable competitor in the Pacific North West, for there, although individual trees may not grow as rapidly, the increment volume of fiber per acre compares very favorably with the South. But the South has advantages in integrated use because its forests may be turpentined during the growing process, which should yield a subsidiary profit that will make its pulpwood and its lumber more powerful competitors in the national market.

The American industry has piled up experience in its forest operations that points conclusively to the necessity for forest management directed toward cropping at periodic intervals. Few men in the industry would dare undertake a large development without adequate forest reserves thoroughly within their control. Most of them, furthermore, look beyond the existing timber; they consider the possibilities of timber growth for they know that the existing timber cannot last forever. In fact, the dream of the forester, is in many respects the necessity of the pulp manufacturer. The slash pine, the triple-purpose trees on Southern Georgia fit both the dream and the necessity; they are destined perhaps to lead the way in American forestry and in an intense integration of uses in which calculations indicate an annual financial return that compares favorably with agricultural land use.

**The South's Fighting Chance**

I have attempted in this hurried sketch to present both the advantages and the disadvantages of a further Southern development in paper manufacture. Industrial expansion is a serious matter. There is too much at stake both in the South and in other regions to treat it lightly or partially.

I believe that you will agree with me that as far as wood supply and costs are concerned, the South has an excellent chance in our industry. The chance is not without risks, success cannot be considered a foregone conclusion. The South must struggle to realize its possibilities just as any other region must. And the more intensely it struggles the better are its chances.

There is, I believe, no hesitancy on the part of the paper industry in acknowledging the economic advantages of a Southern expansion. As soon as the technical development has been completed the industry will be ready to greet a new competitor and it promises, if I know it, a lively but fair fight. It asks nothing of Southern producers save one thing, and that is temperance in expansion. The industry and the nation has a right to ask that. And it is no favor, for it means as much to the South as it does to other regions. The Canadian experience of over-expansion is a glaring example of the dissigation of chances. May that experience be avoided here and in the Pacific Northwest.

## BOARD PLAN PROGRESSING

*(Continued from page 11)*

regularly quarterly dividend last week on $1.50 preferred stock. Dividends on common stock were discontinued some time ago.

Wage scales of the Consolidated Water Power and Paper Company's mills will be continued on the same basis as during the last year, as the result of the renewal of the working contract and wage agreement last week with unions of the paper makers, pulp and sulphite workers and machinists. George W. Mead, president of the Consolidated, addressed the labor representatives at a conference at the company's offices at Wisconsin Rapids, Wis., and agreed to the renewal on the previous year's basis. This is the fifteenth consecutive year in which the annual negotiations have been held.

Equipment is being installed by the Custodis Chimney Construction Company, Chicago, at the Consolidated's mill at Wisconsin Rapids, to shower the flue gases from the boiler house, thus cleaning up the major portion of the heavy cinders which have fallen on the company premises and nearby places. Each stack is being lined with acid resisting brick similar to the lining of sulphite digesters. Water showers at the top of the stack will wash the cinders to the sewer.

Prof. Louis Kahlenberg, noted chemist and member of the faculty of the University of Wisconsin, Madison, Wis., spoke at a meeting last week at Appleton, Wis., of the Northeast Wisconsin division of the American Chemical Society. He told of experiments which tend to disprove the accepted laws of gases. He has been prominent for years with his opposition to the ionic theory and his experiments to disprove Faraday's law and other generally accepted laws of chemistry.

Stanley Fruzen, an employee of the Hoberg Paper and Fibre Company, Green Bay, Wis., met with a fatal accident last week. He was struck by a pulpwood log which fell 30 feet from a conveyor while wood was being unloaded into the river from aboard the ship *W. J. Crosby*, of Port Arthur. His skull was fractured and he died after reaching a Green Bay hospital.

## Norwegian Pulp Production Rises

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 24, 1933—A report to the Department of Commerce states that Norwegian pulp production during March was in excess of the corresponding month of last year, bleached sulphite showing a rise from 13,350 metric tons to 16,006 tons; unbleached sulphite from 8,580 tons to 10,156 tons; and sulphate pulp from 1,535 tons to 1,639 tons.

# New Method of Sulphite Digester Cooking Control Reduces Cooking Time

By A. H. Stanton[1] and L. H. Brendel[1]

Present day economic demands require increased production with reduced operating costs throughout the process industry. This is particularly true in the paper industry. One outstanding example may be seen in the field of automatic sulphite digester control. We shall investigate in this article the new method which combines automatic rate-of-flow with automatic pressure relief which has reduced sulphite digester cooking time as much as 10 per cent with no other changes being made on the digester.

### Compared With Standard Pressure Method

Perhaps the easiest way to clarify the operation of this new method is by comparing it to what might be termed the standard method of pressure cooking. In this process, as is well known, the digester is brought up to pressure by manual operation of the steam valve with the relief valve remaining closed during the operation. As soon as the digester pressure is reached, an automatic pressure regulator is cut in, which admits steam only as it may be necessitated by a drop in the digester pressure. Such a decrease in pressure can normally only be caused by the manual opening of the relief valve. It is, therefore, apparent that the flow of steam to the digester during the entire cook is dependent upon manual operation. With this method we find the pressure regulator acting only as as digester pressure limit control. Thus whether the plotted temperature curve for the cook is followed or not depends wholly upon the judgment and alertness of the operator in manipulating the relief valve. An examination of a flow chart of a cook made by this method discloses periods of no steam flow to the digester or periods of no circulation in the digester. Of course, during such periods there can be no uniform temperature increase as is called for by the temperature curve. Since most of these periods represent lost time, they vary in importance depending upon the part of the cook in which they occur.

### New Rate of Steam Flow Method

The new rate of steam flow method of digester control is as follows. The steam flow to the digester is automatically controlled while at the same time the relief of liquor or gas, or both, is also automatically controlled. It will be readily appreciated that this is approaching the desired goal of sulphite cooking. Because, if the acid plant delivers a uniform concentration to the digester, and a uniform size of chip is supplied which may vary in moisture content only, then the uniform method of cooking, which may be readily set in accordance with the moisture content variations, will produce the result long desired.

At the beginning of a cook the digester contains a given weight of chips and a specific quantity of acid. In order to carry out the cook in accordance with the plotted temperature curve, it is necessary to add heat units at a definite rate. This is accomplished by a recording rate-of-flow controller which automatically controls the volume of steam and, therefore, the amount of heat which is admitted to the digester. A higher rate of steam flow is required during the penetration period than during the cooking period. We see this by inspecting the slope of the plotted temperature curve during "penetration" and in comparing it with the slope of the same curve during "cooking." Upon the arrival of the digester at the pressure which it is desired to carry on the "cooking," the next step is the relief of liquor and gas. This service is performed by a compensated air operated recording pressure control instrument. Because of its sensitive operation, it maintains the exact digester pressure by automatically actuating the relief control valve at the proper position to relieve the necessary quantity at all times. One important requirement of this pressure controller is that its operation be full floating. This will prevent its spasmodic operation which would result in continual popping open so as to relieve slugs of gas and liquor and then the periodic snapping shut again.

### The Final Step

The final step is the relief of all the remaining gas as soon as practical. This is accomplished by setting the pressure controller at a lower pressure control point. This holds the relief control valve open until the lower instrument pressure setting is reached. During the "cooking" and "relieving," the same rate-of-flow is maintained, which results in the desired rate of temperature increase and aids in shortening the "relieving." It is easily seen from the foregoing description of operation why the exact uniformity of successive cooks is possible. This result is insured since each cook is carried out under identical conditions of steam input and relief. All the operator has to do is to follow a predetermined steam flow chart and pressure chart which will produce the desired plotted temperature curve. Thus the one variable, the difference in the moisture content of one cook from another, will show in the deviation of the actual temperature chart from the plotted chart. The operator finds it an easy task to reset the rate-of-flow sufficiently to bring the temperature curves together again.

### Production Increased

With this system of automatic control, production is increased due to the fact that a higher rate of steam input to the digester may be maintained without danger of "boring." This system also insures circulation during the entire cook which definitely shortens the time required for cooking.

On the other hand with the standard method of cooking there is no way of telling exactly what has taken place during the earlier part of the cook. As a result this requires the relief operator coming in on a change in shift to devote some time to finding out the condition of the cook. Under the new rate-of-flow method, however, the flow chart and pressure relief chart instantly informs the operator, foreman, and superintendent, precisely what has taken place during the proceeding part of the cook. Furthermore, this new system does much to hold the entire cook on a definite schedule.

The following safety and convenience features are incorporated in the new-rate-of-flow methods of sulphite di-

[1]Mason Regulator Company, Boston, Mass.

gester control. The rate of steam flow may be instantly reset either up or down as the cook progresses by simply turning a convenient key. Likewise, the same operation permits the lowering of the digester pressure at the end of the cook in order to get rid of the gas at the desired rate.

### An Added Safety Feature

You will observe an added safety feature by referring to Fig. 1. You will note a small special safety valve in the air supply line to the rate-of-flow controller which is actuated by the digester pressure. The importance of this regulator must not be over-looked as a safety feature. The function of the rate controller, under normal operation, is to open the steam admission valve as the digester pressure increases. The safety valve prevents steam flow under excessive digester pressure conditions. It accomplishes this by shutting off the operating air to the rate-of-flow controller if the digester pressure should reach a predetermined excessive pressure for which the springs of the special safety valve have been set.

### Made of Chromium and Nickel Alloy

The control valve in the relief line must pass sulphurous acid, lime and also $SO_2$ gas at temperatures ranging from room temperature up to 160 deg. C. in a single cook. To insure resistance and long life in this severe service, the body and parts of this valve are made of a chromium and nickel alloy steel. It is also advisable to use a pressure grease seal which not only lubricates the stem but prevents leakage which might occur were the chemicals to disintegrate ordinary packing. Furthermore, both the steam admission control valve and the relief control valve are so built that they will close automatically and shut in the digester in the event of a failure of the operating air supply.

### Cooking Time Reduced as High as 10 Per Cent

Digester installations of this new method have reduced the cooking time as high as 10 per cent. It requires but little mathematical ability to estimate the amount of increased production which is now possible in these mills with the same number of digesters. There is no doubt that many of the answers to the continual demands for increased production and higher efficiencies lie in the refinements which are being made in every branch of the paper industry. So that even though present day conditions are exacting, they are stimulating a great deal of worth while development work in the field of automatic control.

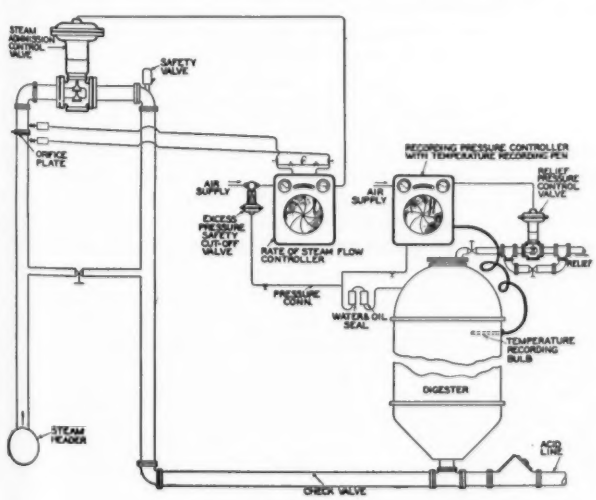



FIG. 1.

## St. Regis Reduces Wages 5 Per Cent

NORWOOD, N. Y., May 20, 1933—At a conference held during the past week of officials of the St. Regis Paper Company and International union brotherhoods, a five per cent reduction in wages was agreed upon. This cut will be accepted by about 600 employees.

The new schedule becomes operative May 14, and will be in effect a year, at which time company officials are of the opinion that there will be an improvement in industrial conditions. At the end of the year a conference will be held and a new scale of wages will try to be agreed upon. The scale as it now stands is from 35 cents minimum for laborers to 96½ cents for machine tenders.

At the conference the company was represented by C. R. McMillan, executive vice-president; Secretary Carl B. Martin, General Manager Thomas A. Wark, General Superintendent E. J. McCormick and Auditor Harold Radigan.

Unions were represented by President Matthew Burns of the International Brotherhood of Paper Makers, George J. Bowen, Washington, D. C., head of the machinists' union; John Flynn, New York, head of the carpenters' union, and John McNamara, Boston, head of the firemans' union.

Manufacture of news print has been completely abandoned by the St. Regis Company, which formerly made large quantities in its Deferiet and St. Lawrence county mills, its low price at the present time, making it very unprofitable.

Ground wood book paper has already been started in the company's Norfolk mill as a replacing grade and contemplation of the manufacture of magazine paper is in the near future. Catalogue paper is being made at Deferiet and some of the other mills.

The Deferiet and Norfolk mills have been running five days a week intermittently. The Raymondville mill is running only five and six days a month. The Norwood mill has been shut down since January, 1932.

As soon as trade conditions warrant, the company hopes to have all of the mills full time on profitable grades, but it now seems likely that they will never make news print again, unless there should be a market turn which would make it desirable.

## Government Paper Bids

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 24, 1933—The Government Printing Office has received the following bids for 10,000 sheets of blue sulphite bond paper: Gilman Fanfold Corporation, Ltd., at $8.03 per M sheets; Stephen Greene Company, $12.75; The Mani-Fold Company, $8.53; and the Rotary Printing Company, $12.00 less 1 per cent.

Barton, Duer & Koch Paper Company has been awarded the contract for furnishing the Government Printing Office with 200,000 pounds of manila tag board at 6.05 cents per pound and the same company will also furnish 10,000 pounds of pink calendered tag board at 6.8 cents per pound. Reese & Reese will furnish 46,000 sheets of circular grease proof vegetable parchment paper at $43.44. Bids for these items were received on May 5. The Tarentum Paper Company will furnish 110 sheets of 26 x 32 H.F. red sulphite paper at 10 cents per pound, bids for which were received on April 28.

# Delaware Valley Section of TAPPI Discusses Pulp Specifications

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry met at the Engineers Club, Spruce Street, Philadelphia, Friday evening, May 19, 1933. W. R. Maull, vice president, Dill & Collins Inc., and chairman of the Section presided.

Following the dinner there was a recess period during which those present had an opportunity to fraternize.

### Election of Officers

Since this was the annual meeting of the Section the election was held. By unanimous vote the following members were elected to office: G. E. Landt, chief chemist of Continental-Diamond Fibre Company, Bridgeport, Pa., chairman; H. P. Cannon, planning engineer, Container Corporation of America, Manayunk, Pa., vice chairman; and J. C. Harper, assistant general manager, West Jersey Paper Company, Camden, N. J., secretary-treasurer. W. R. Maull and E. J. Albert were elected to the executive committee.

W. R. Maull appointed M. C. Cooper and Maurice Connor as a committee to audit the financial report of the secretary-treasurer.

In retiring from office as chairman, Mr. Maull expressed his high appreciation of the splendid cooperation that he received from his officers and committeemen and for the large number of new friends that he made during the past two years. He thereupon turned over to the new chairman the charter of the Section together with the chairman's gavel.

In accepting office Dr. Landt paid enthusiastic tribute to the wonderful leadership of Mr. Maull who set a standard that will require great effort to maintain. In commenting on the place of technical men in the industry Dr. Landt expressed the hope that such men will carry on the high principles of their profession and not be afraid to study and apply theories based on established scientific laws and engineering approach.

Visitors at the meeting were Miss Helen U. Kiely, American Writing Paper Company, Holyoke, Massachusetts; R. B. Wolf, Weyerhaeuser Timber Company, Longview, Washington, and Miss Ann Wolf; F. M. Williams, Williams Apparatus Company, Watertown, N. Y.

### Pulp Specifications

The speaker of the evening was Dr. H. C. Schwalbe, research chemist, Dill & Collins, Inc., Philadelphia, who reported on a survey that he recently made in cooperation with the American Writing Paper Company, Mead Corporation, Bureau of Standards, Brown Company and the Forest Products Laboratory, whereby each laboratory was given an opportunity to test and classify the same pulp.

Each mill used its own procedure in making tests. The idea was to see how far the mill methods could be used for pulp specification work.

From the results obtained it is evident that there is a great lack of uniformity in testing methods, testing instruments and means of evaluation in the industry. It is therefore of tremendous importance to use the methods adopted by the Technical Association of the Pulp and Paper Industry and not attempt to modify these in any way if testing is to mean anything. It is likewise advisable to use recognized testing instruments rather than homemade affairs or modifications of the recognized equipment.

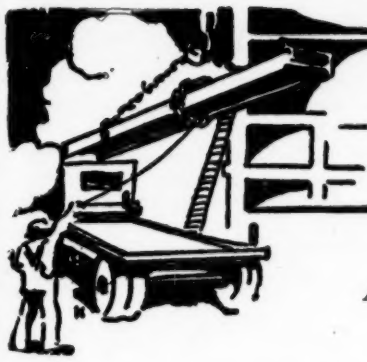
Dr. Schwalbe stated that the survey shows that because the leading laboratories of the industry are at present unable to obtain reasonably comparative results in measuring pulp quality it is evident that the industry is still not ready to establish pulp specifications. It is furthermore of paramount importance to make an intensive study of testing methods and too much work of this nature can not be done. More research work such as that conducted by R. H. Doughty should be encouraged. Inactivity can only delay the introduction of pulp specifications but they are inevitable and will come in the paper industry just as raw materials specifications have come in other industries.

Those present included: H. L. Becker, Agassote Millboard Company, Trenton, N. J.; R. B. Brown, consultant, Trenton, N. J.; H. P. Cannon, Container Corporation of America, Manayunk, Pa.; J. d'A. Clark, Scott Paper Company, Chester, Pa.; C. M. Connor, Glassine Paper Company, W. Conshohocken, Pa.; A. M. Cooper, Westinghouse Electric and Manufacturing Company, Philadelphia; James Fish, Paterson Parchment Company, Bristol, Pa.; E. N. Glauner, Downingtown Manufacturing Company, Downingtown, Pa.; J. C. Harper Jr., West Jersey Paper Manufacturing Company, Camden, N. J.; W. O. Hisey, P. H. Glatfelter Company, Spring Grove, Pa.; Leslie Justice, Container Corporation of America, Manayunk; C. J. Kern, Moore & White Company, Philadelphia; R. J. Knoll Scott Paper Company, Chester, Pa.; G. E. Landt, Continental-Diamond Fibre Company, Bridgeport, Pa.; A. J. Luettgen, P. H. Glatfelter Company, Spring Grove, Pa.; R. G. Macdonald, secretary of TAPPI, New York; W. D. Macgeorge, Thwing Instrument Company, Philadelphia, Pa.; F. J. McAndrews, McDowell Paper Mills, Manayunk; J. J. McDonald, Brown Company, New York; W. T. Marble, Container Corporation of America, Manayunk; W. R. Maull, Dill & Collins Inc., Philadelphia; M. C. Maxwell, McDowell Paper Mills, Manayunk; Joseph Razek, University of Pennsylvania, Philadelphia; S. D. Reynolds, Container Corporation of America, Manayunk; C. W. Rivise, patent attorney, Philadelphia; Jay Robinson, National Vulcanized Fibre Company, Yorklyn, Del.; John Roslund, Moore & White Company, Philadelphia; H. C. Schwalbe, Dill & Collins Inc., Philadelphia; J. Carl Schmidt, E. I. du-Pont de Nemours & Co., Philadelphia; W. M. Shoemaker National Vulcanized Fibre Company, Yorklyn, Del.; F. W. Varden, Barber Asphalt Company, Philadelphia; R. S. Von Hazmburg, Scott Paper Company, Chester, Pa.; E. N. Wennberg, Containental-Diamond Fibre Company, Bridgeport, Pa.; A. W. Wickham, MacAndrews & Forbes Company, Camden, N. J.

## Maintain Tariff On Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 24, 1933—British trade agreements with Norway and Sweden include among other features maintenance of existing tariff status on news print paper and wood pulp and reduction of tariff duties on other classes of paper according to a cablegram from the American Commercial Attache in London.



# CONSTRUCTION NEWS

*A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills*

### Construction News

**Elizabeth, N. J.**—The Wilson-Jones Company, 3300 Franklin boulevard, Chicago, Ill., manufacturer of loose-leaf paper stock, paper and paperboard binders, etc., has awarded general contract to the White Construction Company, 95 Madison avenue, New York, N. Y., for new Eastern branch converting plant at Elizabeth, where tract of land recently was purchased at Bayway and Lidgerwood avenues. Superstructure will be placed under way at early date and building is scheduled for completion in September. It will be one-story, 150 x 450 feet, with power house adjoining, 40 x 40 feet. It is estimated to cost about $85,000 with equipment. Leo F. Caproni, 742 Elm street, New Haven, Conn., is architect and engineer.

**Kalamazoo, Mich.**—The Kalamazoo Vegetable Parchment Company, Parchment, near Kalamazoo, has completed plans for construction of two new one-story additions to local mill. Bids will be asked at once on general contract and work placed under way at early date. No estimate of cost has been announced. Billingham & Cobb, Kalamazoo, are architects.

**Cloquet, Minn.**—The Northwest Paper Company has resumed operations at sawmill and pulpwood plant, following curtailment for several months, and will give employment to about 125 ment. It is proposed to maintain production for an indefinite period.

**Hopewell, Va.**—The Tubize Chatillon Corporation manufacturer of cellulose rayon products, has approved plans and will begin work at once on new addition to local mill, to be one-story, 160 x 260 feet, reported to cost over $50,000, with equipment. General contract has been let to the Capital Construction Company, 62 Bartow street, N.W., Atlanta, Ga. Robert & Company, Bona Allen Building, Atlanta, are architects and engineers. John E. Bassill is president.

**Seattle, Wash.**—All miscellaneous building contracts, covering millwork, painting, plastering, etc., have been let for new plant at 4634 East Marginal way for the Western Containers, Inc., 5053 East Marginal way, manufacturer of corrugated paper boxes and containers, and structure will be pushed to early completion. Company will occupy the building under long-term lease. As previously noted in these columns, it will be one-story, 150 x 246 feet, estimated to cost about $75,000, with equipment. It will provide for increased production, while a part of the structure will be used for storage and distributing service. General building contract recently was let to the Austin Company, Dexter-Horton Building, city.

**Piercefield, N. Y.**—The International Paper Company, 220 East 42nd street, New York, N. Y., has recently resumed production at its Piercefield mill, giving employment to a large working force. Operations are expected to be maintained for an indefinite period.

**Great Falls, Mont.**—Fire recently damaged a portion of storage and distributing building of the Great Falls Paper Company. An official estimate of loss has not been announced. The damage will be replaced.

**Amcelle, Md.**—Celanese Corporation of America, Amcelle, near Cumberland, Md., has advanced production schedule to 100 per cent basis at local cellulose rayon mill, giving employment to full working quota in all departments. It is expected to hold to this schedule for some time to come.

**Augusta, Me.**—Following recent appointment of a receiver, local mill of the Cushnoc Paper Corporation has been shut down, and will remain closed for an indefinite period. The mill has been on a curtailed schedule for several months, giving employment to about 200 men, or approximately one-half the normal working force.

**Camden, N. J.**—The Ball Manufacturing Company, care of the Corporation Trust Company of New Jersey, 328 Market street, Camden, representative, recently organized with capital of 100 shares of stock, no par value, is said to be planning early operation of local plant for manufacture of a line of paper goods. F. Stanley Saurman is one of the incorporators.

**Greenwich, N. Y.**—The Stevens & Thompson Paper Company, North Hoosick, N. Y., has adopted a capacity 24-hour production schedule at its mills at Greenwich, with some divisions on a double shift basis. Maximum working force is being employed. Company has recently advanced wages 5 per cent.

**Greensville, Ont.**—The Greensville Paper Mill Company, Ltd., is said to be planning construction of a new addition to mill. It will be one-story, designed for storage and distributing service, and other operation. No estimate of cost has been announced.

**Vancouver, B. C.**—The Bartram Paper Products Company, Ltd., 1280 Homer street, manufacturer of paper bags and containers, has plans under way for construction of a new plant unit at Franklin street and Woodland drive. It will be two-story, 65 x 165 feet, reported to cost over $40,000, with equipment. Considerable increase in present capacity will be carried out. W. G. Swan, Berks Building, city, is engineer.

**Tokyo, Japan**—The Tokyo Fibre Industry Company, Ltd., recently organized with a capital of 10,000,000 yen (about $2,500,000), as an interest of the Okura Company, Tokyo is considering early construction of a new plant for manufacture of fiber products. Company will be affiliated with the Tokai Paper Material Company, Ltd., another subsidiary of the Okura interests, and proposed mill will be in vicinity of plant of last noted company. It is reported to cost over $500,000 with equipment.

### New Companies, Etc.

**Hartford, Conn.**—The Champlin Box Company has

been incorporated with capital of $15,000, to manufacture and deal in corrugated and other paper and cardboard boxes and containers. J. R. Champlin, Waterbury, Conn.; Earl H. Hodge, South Glastonbury, Conn.; and George T. Seymour, Hartford, are incorporators.

**New York, N. Y.**—The Elkinson Paper Bag & Twine Company, Inc., has been incorporated with capital of $10,000, to manufacture and deal in paper bags, cartons, paperboard boxes and other containers, etc. New company is represented by Vahan H. Kalenderian, 122 East 42nd street, attorney.

**Chicago, Ill.**—The Charles Bruning Company, Inc., 445 Plymouth street, has filed notice of change of company name to the American Blue Print Paper Company.

**New York, N. Y.**—The Paper Trades Institute, Ltd., has been organized with a capital of 100 shares of stock, no par value, to act in a consulting and advisory capacity to companies engaged in the paper industry. The organization is represented by Theodore Siskind, 233 Broadway, an attorney.

**New York, N. Y.**—The American Paper Exports, Inc., 75 West street, has filed notice of change of capital from $770,700 to $385,900.

**New York, N. Y.**—The Loose Leaf Equipment Company, Inc., has been chartered with capital of 200 shares of stock, no par value, to manufacture and deal in loose leaf paper stocks, cardboard binders, etc. Company is represented by Benjamin Spector, 299 Broadway, attorney.

**New York, N. Y.**—The Lathrop paper Company, 155 155 Perry street, has filed notice of change in capitalization from $480,000 to $290,000.

## New Paper Jobbing House for York

YORK, Pa., May 20, 1922.—The Emigh Paper Company, headed by O. R. Emigh, will open its general office and headquarters at 22 West King street, this city. The company will be manufacturers' agents and jobbers of all high grade wrapping toilet tissues, fiber dishes, rope, twine, asphalt roll roofing shingles and a general line of asbestos products.

Harry C. Elsesser of York is connected with the new company as secretary. Five salesmen will cover all the territory in Eastern Pennsylvania and the greater part of Maryland. The men associated with Mr. Emigh are all men who have had years of experience in the selling of paper.

Just as soon as business conditions permit, a contracting department will be opened in charge of Mr. Elsesser for the application of asphalt roofings and shingles; also the installation of asbestos pipe coverings, cement, etc.

O. R. Emigh, the head of the new company, has had twenty-five years experience in the manufacture and sale of paper from coast to coast. He started in the paper business in Johnsonburg, Pa., and later came with his parents to York Haven where he completed his trade under his father, G. C. Emigh, who was general superintendent and manager of the York Haven Paper Company for thirty years, until his retirement a few years ago.

Mr. Emigh was superintendent of the Cordorus Paper Mill under J. C. Schmidt and R. A. G. Ault for five years when they had a small cylinder paper machine that trimmed a roll of building paper 36 inches wide. For three years he was general superintendent of the Blacks mill, known as the York Felt and Paper Company. Later he resigned and went to East St. Louis, Ill., where he erected the first mill of the General Roofing Manufacturing Company. For several years Mr. Emigh was general superintendent of that company, having charge of the manufacturing at the East St. Louis and Marseilles, Ill., plants.

## Fragrantized Paper

By ROGER WOOD

Fads and fancies have a habit of springing up over night, and coming into full bloom before we realize what is happening.

Take the case of color in household articles and fixtures. It swept the country so fast that many manufacturers, who would not recognize the trend, had to drop out of business.

Now, the new trend is fragrance, an appeal to our olfactory senses. This form of appeal is growing steadily in many industries.

Cigarettes have had their violet flavor or scent for more than 20 years. Then came menthol and similar medicated appeals. Now a whole new group of scents are being planned.

Disinfectants have long had their offensive odors disguised by pleasing perfumes.

Automobile dealers now have their show cars sprayed, each with a different scent, a dainty fragrance once or twice a day. It has proven to have a valuable sales appeal.

Recently one of the "best sellers" in the fiction field was printed on scented paper.

In Europe scenting of blotters and picture cards has long been in every day use.

However, the commercial possibilities of the use of fragrance in printing papers have been neglected until recently.

Since 1929 chemists at the Miami Valley Coated Paper Company have concluded numerous experiments in "fragrantizing" coated paper. Samples filed in 1929 have been brought out and found to retain the scent or fragrance almost as heavy as when originally applied.

This proves the commercial value of scenting coated and enamel papers.

There are many possibilities presented for use by printers. Catalogues, stationery, envelope inserts, as well as direct mail campaign pieces for florists, chemical manufacturers, furniture, millinery, lumber companies, paint manufacturers, toilet preparations, confectioners, gas and oil, department stores, laundries, and toys.

Indeed there are hundreds of industries that will use "Fragrantized" paper. The Miami Valley Coated Paper Company is prepared to develop individualized scents on orders. Minimum quantity that can be made is one ton (2,000 pounds).

Inquiries by printers, publishers, as well as industrial organizations are invited.

Odors can be made from the dainty loveliness of the rose or the luring sweetness of the lilac, to the fragrance of the pine forest.

Then, in addition to appetizing aromas of foods, there are the thirst reminding and provoking scent of mint, wintergreen, lemon, orange, and various other fruits.

Consider too the suggestions of the exotic, or that of mysticism by the fragrance of sandlewood or of the spices such as burnt cinnamon or oil of cloves.

Indeed the possibilities are so great that someday soon we will find business houses adopting a definite fragrance as their trade-mark. An identifying fragrance.

Are you awake to the possibilities of fragrance in your business, in your papers, advertising matter, stationery, etc.? The idea is new. It is an innovation. Now is the time to put this new industrial development of paper making to work for you before your competitors are alive to its tremendous possibilities as a sales tool.

# Obituary

### William L. Nixon

William Lambert Nixon, aged 56, of 7 Williams street, Holyoke, Mass., a former vice-president of the American Writing Paper Company, Inc., and a well known authority on paper making, died last Thursday at the Holyoke Hospital, after several months illness.

Mr. Nixon was born in St. Clair, Pa., April 22, 1877, the son of the late Ralph and Charlotte (Brown) Nixon. He received his education in the Philadelphia public schools and took an engineering course with the Drexel Institute of Philadelphia. He started work with the Moore & White Company, of Philadelphia, nationally known paper machine builders, upon his graduation from school, and worked up to a prominent place in the engineering and sales departments. He went to Holyoke in 1915, after having completed nineteen years of service with Moore & White, to join R. F. McElwain in the Chemical Paper Manufacturing Company.

For nine and a half years, Mr. Nixon was at the Chemical mills before becoming associated with the American Writing Paper Company, Inc., in 1923, as production manager of a group of mills. At the time of the reorganization, he was made vice-president. He resigned from the American Writing Paper Company, Inc., in 1930 to return with the Moore & White Company as vice-president and general manager of the organization. Mr. Nixon went back to Holyoke about a year ago.

Mr. Nixon had a host of friends in Holyoke and won for himself a prominent position in the life of the community. He was an enthusiastic Y. M. C. A. worker and deeply interested in the affairs of the local association. At the time of his resignation from the American Writing Paper Company, President Sidney L. Willson made the following public statement:

"It is a matter of keen regret to have Mr. Nixon leave the company because during his seven years' connection with it, his ability, energy and loyalty have been outstanding."

He was a prominent member of the Technical Association of the Paper Industry, joining the organization in 1915, member of the Mt. Nonotuck Lodge of Masons, and the First Congregational Church. His wife, the former Sarah A. Harper; two sons, William M. of Holyoke, and Howard F., of Cleveland, Ohio, and a daughter, Charlotte, at home, survive.

### Albert C. Abbott

E. C. Palmer & Co., Ltd., general paper merchants, of New Orleans, La., announce the death of their treasurer, Albert C. Abbott, on Saturday, May 13.

### John F. Byrne

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., May 19, 1933.—John F. Byrne, aged 61, for years identified with the paper box business in Battle Creek, Kalamazoo, and Grand Rapids, died in Battle Creek Thursday. He was manager of the New York office of the Sutherland Paper Company, of Kalamazoo.

Mr. Byrne became superintendent of the Battle Creek Paper Box Company for the late Charles W. Post in 1900, was identified subsequently with the Record Publishing and Carton Company and Michigan Carton Company, Battle Creek, and in 1919 left the latter concern to become superintendent of the plant of the Standard Paper Company, here. Remaining with the company for two years after its merger with the Sutherland Paper Company, Mr. Byrne then went to Grand Rapids to manage the Wolverine Paper Company.

He later joined Gardner & Harvey, Cincinnati Carton concern, and in recent years has been manager of the New York office of the Sutherland Paper Company. Five years ago he was severely injured in an automobile accident. He returned to Battle Creek three months ago to recuperate, taking leave from his New York duties.

He is survived by his widow, a daughter, Mrs. Helen Mayo, of Kalamazoo; and a son, Harry J. Byrne, of Battle Creek.

## To Be Vice-President of Crown-Willamette

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., May 19, 1933—Announcement of the promotion of Frank N. Youngman, vice-president of Pacific Mills Limited, to the vice-presidency of the Crown-Willamette Paper Company and management of sales throughout the Pacific Northwest and the whole of Canada was recently made by A. B. Martin, president of the Pacific Mills organization, following a visit to the Vancouver and Ocean Falls plants of his company in British Columbia.

Mr. Youngman will leave for Portland, Ore., early in June to assume his new duties, and David G. Stenstrom, resident manager of the plant at Ocean Falls, B. C., will assume the duties formerly undertaken by Mr. Youngman. Mr. Stenstrom's residence in Vancouver will follow a six-months trip to Australia and New Zealand where he will contact with his company's representatives. His new position involves the management of the company throughout the whole of British Columbia.

Mr. Youngman is well known in pulp and paper circles in the United States and Canada, entering this line of business in 1916 with the Consolidated Power & Paper Company in Wisconsin, where he was born. He later became manager of the Thunder Bay Paper Company, and in this capacity came to Canada in 1921. In 1927 he was appointed vice-president and general manager of Pacific Mills Limited at Vancouver and has held this post until the present time.

## Western Board & Paper Co. Leased

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., May 19, 1933.—Order renting the Western Board and Paper Company property to the Sutherland Paper Company was made Tuesday by Judge George V. Weimer, in circuit court, on petition of J. T. Bachelder, receiver for the Western Board and Paper Company, here.

The order authorizes the receiver to enter into a lease with the Sutherland company of building and premises of the Western Board concern. The lease is authorized for six months. At the expiration of the six months, the lease may be continued from month to month and can be terminated by either party on 60 days' notice.

## Paper Mill Employment

April employment in the paper and pulp industry was 72.6 compared with 72.5 for March and 76.4 in April of last year taking 1926 at 100 according to the Bureau of Labor Statistics, Department of Labor. Payrolls in the same industry in April were 45.6 compared with 45.2 in March and 57.2 in April of last year.

Employment in the paper box industry in April was 67 compared with 68.9 in March and 72.5 in April of last year while April employment index was 51.1 compared with 51.4 in March and 63.4 in April of last year.

## New York Trade Jottings

Old Colony Envelope Compny has leased office space at 584 Fifth Avenue, New York

* * *

Newark Paraffin and Parchment Paper Company has leased space at 8 West 40th street, New York .

* * *

William H. Holden, general paper merchant, is now located in his new offices at 41 Park Row, New York.

* * *

Fifteen thousand square feet has been leased in the new Port Authority Commerce Building at 111 Eighth Avenue to the Grady-Travers Company, paper and cordage.

* * *

*Forest Log,* the house organ of the Forest Paper Company, New York, is authority for the statement that James Farley, the new postmaster general, received his first training as a politician when he worked as a paper salesman many years ago for one of its down-town competitors.

* * *

Emmett H. Taylor, secretary of the Writing Paper Manufacturers Association, discussed prevailing business conditions and problems at the regular weekly luncheon and meeting of the Eastern Division of the Salesmen's Association of the Paper Industry, held at the Hotel Roosevelt, New York, on Monday last. A spirited discussion followed his address.

* * *

The Bristol Company, of Waterbury, Conn., makers of indicating, recording and cotnrolling instruments, announces that the New York Office is now located in the *Daily News* Building, 220 East 42nd street. Because of its centrol location and easy accessibility, this new office will enable the company still more efficiently to serve its clientele throughout the metropolitan territory. C. W. Williamson, district manager, continues in charge, assisted by a staff of six application and service engineers.

## Paper Trades Institute Ltd. Formed

Every industry throughout the country must undergo radical changes in trade policies, if it is to survive this period of depression. The Government has recognized the need for and the importance of immediate legislative action to make such changes in trade policies possible.

The paper and allied trades industries, as other industries, are suffering from unethical trade practices and trade abuses, over production, throat cutting competition, etc.

The Paper Trades Institute Ltd., 3508-14 Woolworth Bldg., New York City, has been organized among other things to assist the industries of the paper trades, to a better understanding among the manufacturers and wholesalers on the one hand, and the trade on the other. It will also serve as a credit information exchange bureau.

Max P. Weinberg, who is chairman and manager of the Metropolitan Roll Tissue Manufacturers Association, and who is well known in the paper industries, is the president and manager of The Paper Trades Institute Ltd. His present plan is to organize each of the divisions in the paper industry catering to the jobbing trade in the New England and Middle Atlantic States.

## Madawaska Board Mill Closes

Fraser Industries, Inc., has made announcement that Fraser Paper Limited has decided to suspend operation of the Madawaska, Me., Board Mill, effective at once.

## Solka, the Highly Purified Cellulose

The importance of Solka to many major industries cannot be over-emphasized. In the manufacture of textiles; paper products, including specialties; rayon; rugs; roofing; shoes, including inner-soles and upper stock, and a host of other products, Solka assures better quality.

Solka provides strength, flexibility and toughness, as well as resistance to deterioration from time, wear and exposure.

Cellulose is the framework of vegetable life. By their patented process, the Brown Company, of Portland, Maine, removes from the cellulose all the impurities of the raw materials that nature builds around it until the purified cellulose, which has been named Solka, alone remains.

The use of the resultant Solka as a base in paper making gives quality, permanence, toughness and strength to various grades of paper, as for instance, the Nibroc line of papers manufactured by the Brown Company, including Nibroc Wet-Strength Towels.

This application of Solka in the paper industry parallels its use in other fields. Solka is particularly well adapted to combining with various impregnants so that shoe making materials are produced from it. Again it can be spun into yarn and woven into fabrics, just as it can also be felted and impregnated with asphalt to create tough, high-grade roofing, or, still further, Solka can be combined with synthetic resins to make moulded products, such as radio panels.

## Low Fare to Green Bay

All who are going to attend the Fourteenth Annual Convention of the American Pulp and Paper Mill Superintendents Association at Green Bay, June 8, 9 and 10, should be sure to take advantage of the special low fares provided by the railroads.

Special reduced fare round trip tickets from all points to Chicago are being sold because of the Century of Progress Exposition. These tickets are quite a reduction in price and one and one-third of the regular one way fare for a round trip and allow for a stop-over of sixteen days.

From Chicago to Green Bay the Northwestern Lines sell a summer tourist round trip ticket to Shawano for $9.32. This ticket is good for Green Bay and all arrangements have been made to have the return trip validated without having to complete the trip to Shawano. The regular fare from Chicago to Shawano is $7.11 one way.

The Chicago and Northwestern Railroad has arranged to provide special sleepers for the superintendents and their friends from Chicago to Green Bay on the trains leaving Northwestern Station Chicago at 9:30 P.M. June 6 and June 7.

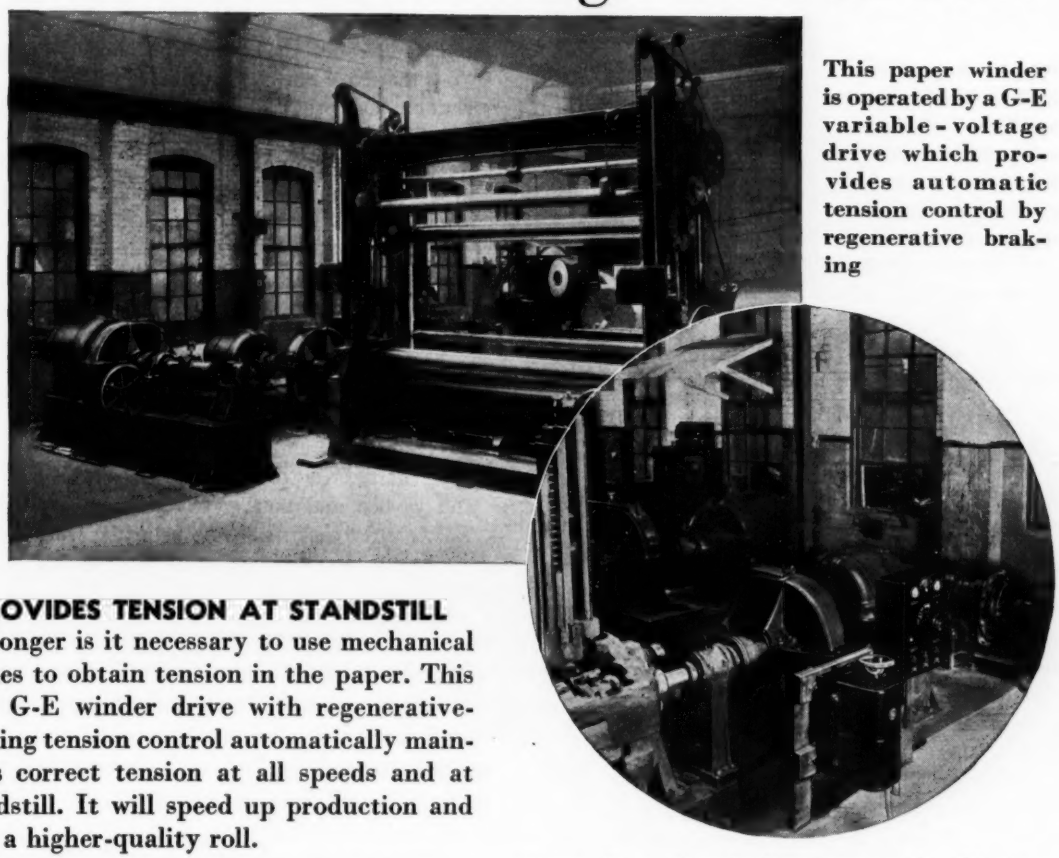
## Philadelphia News Notes

The Philadelphia Paper and Bag Institute met at the Elks Clubhouse on Wednesday night, and though no particular business was transacted there was unanimity of opinion that activity had increased to a marked extent during the month of May.

The Container Corporation of America, Manayunk Division, reports great activity—really an exceptional spurt in business. A 12-hour shift is running, but in the next two weeks the manufacturing department will go on a three 8-hour shift basis, increasing the payroll 36 per cent. Production in beer containers is now very heavy. J. J. Brossard, of Chicago, vice president in charge of production, visited the plant during the week and was highly pleased with its activity.

# Announcing

## A NEW Variable-voltage Winder Drive



This paper winder is operated by a G-E variable-voltage drive which provides automatic tension control by regenerative braking

### PROVIDES TENSION AT STANDSTILL

No longer is it necessary to use mechanical brakes to obtain tension in the paper. This new G-E winder drive with regenerative-braking tension control automatically maintains correct tension at all speeds and at standstill. It will speed up production and give a higher-quality roll.

### WINDS ROLLS OF UNIFORM DENSITY

By using this new drive, you can eliminate soft-centered rolls. You will be able to wind the same amount of paper in rolls of smaller diameter; and your customers will be more satisfied, because they can unwind them at higher speeds and use the paper right down to the core.

### SAVES POWER

With this new G-E winder drive, the power formerly dissipated in mechanical braking is returned as electrical energy to the driving motor by the braking generator. In winding heavy kraft or board, this power saving may be as high as 50 or 60 per cent — a big factor in reducing your power costs.

Would you like to have complete information on this new G-E variable-voltage winder drive? Write for a copy of our descriptive bulletin on winders, GEA-1745. Address the nearest G-E office, or General Electric, Dept. 6-201, Schenectady, N. Y.

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## INDUSTRIAL RECOVERY BILL

The industrial recovery bill sent to Congress last week, is President Roosevelt's latest measure in his broad plan to end the depression. It is briefly a plan for Federal direction of business under codes of fair competition.

Under the industrial regulation section if the bill is passed, as it almost certainly will be, industry will be permitted to get together through trade associations to control production, prices, hours of work and minimum wages. Should these agreements fail in any industry or should a minority decline to join, the bill empowers the President to license plants if necessary.

Characterizing the proposed national industrial recovery act as "an advanced step in social evolution heralded by manufacturers, labor and the informed public as logical, sane, workable and inevitable," Raymond L. Collier, managing director of the Steel Founders Society of America, predicted that on the passage of the act, trade associations will emerge as the leading planning agencies for their respective industries.

"Ever since the anti-trust laws were enacted forty-three years ago," he said, "the attitude of government and the average layman has been that industrial corporations should be made to wage eternal warfare against each other. There has long been agreement that a change was necessary. The question has not been whether industrial control and a planned economy were wise or sound, but to determine by whom the regulation would be administered.

"Industry best knows its own troubles and shortcomings. It knows what it wants and needs to place itself on a profitable basis that will insure maximum employment and fair wages. It knows the evils that have grown up around it and can draft industrial codes outlawing its unfair trade practices. It knows what fair prices for its products should be.

"Over the years these factors have been the concern of trade associations, but heretofore they have lacked the sanction of government to initiate such measures as they found to be necessary and beneficial. The legalistic taboo did not distinguish between trade agreements on the basis of whether or not they were in the public interest. All agreements were forbidden.

"Now the trade associations are getting the green light. They can proceed to lay out sound plans for their respective industries, the only condition being that their regulations and codes shall serve the public interest. Associations that have not had experience in studying wages, competition and production factors will not be equipped to function without readjustment under the new plan.

"In some cases new leadership will be found desirable; in other cases absolutely essential. The new-type trade association will have a big responsibility to fulfill. It must be judiciously manned with competent, experienced personnel; nothing less. It must not fail to measure up."

Senator Wagner of New York who sponsored the bill has explained its purpose as follows:—

The National Recovery Bill consists of two principal parts, the first dealing with industrial recovery and the second with public works.

The principal and immediate object of this bill is to open opportunities for the employment of several million men and women and thus distribute purchasing power which will be effective in starting again the wheels of industry.

The purpose of Title I of the bill (dealing with industrial recovery) is to secure cooperative action within industry with a view to eliminating unfair competitive practices and thereby to reduce unemployment, improve standards of labor and otherwise to rehabilitate industry.

The bill authorizes any group or association within a trade or industry to prepare a code of fair competition which sets forth the standards covering trade and competitive practices within that industry. Such a code is without effect until it is approved by the President.

The President may approve such a code if he finds:

1. That the group presenting the code truly represents the trade or industry for which it speaks.

2. That it admits freely to membership all who are engaged in the same trade or industry.

3. That the code of rules is fair to competitors, employees and consumers.

4. That it will not promote monopoly.

5. That it does not oppress or discriminate against small business enterprises.

In addition the employers submitting such a code of fair competition must agree that their employees shall have the right to organize and bargain collectively and that their right to join a labor organization will not be interfered with. They must undertake to reduce the hours of labor to that number which the President finds will be most helpful in increasing employment in the industry. Finally they must agree to pay a minimum scale of wages and maintain

minimum standards of working conditions as determined by the President.

The President is further authorized to enter into or approve agreements relating to any trade or industry with a view to improving conditions within that industry and increasing its power to provide employment.

The initiative is left with industry. However, should an industry be unable or refuse to cooperate, the President may impose upon it a code of fair competition and in extraordinary circumstances license the trade or industry.

Once a code of fair competition is approved or issued by the President, it becomes the standard of fair competition within that trade or industry to which it applies, and all those who comply with it are exempt from the provisions of the anti-trust laws and all those who violate it are subject to legal penalties.

Title II of the bill authorizes the President to formulate a $3,300,000,000 program of public works, Federal, State and local. The projects to be prosecuted include the construction and repair of highways and public buildings, the elimination of railroad grade crossings, the conservation of natural resources, the construction under public regulation or control of low cost housing and slum clearance projects, and other public projects. The work may be done directly by the Federal Government or may be financed by the Federal Government by extending loans and grants to States, municipalities and other public bodies and loans to a limited number of private corporations engaged in the construction of projects devoted to the public use. The bill contemplates single-headed responsibility in the execution of the program and the authority is therefore vested entirely in the President.

To finance this program the bill authorizes the issuance of bonds to be retired by payments into the sinking fund out of a special tax provided for the purpose.

## Import Paper Decisions

The United States Customs Court has rendered decision upon review in two cases involving Swedish kraft paper, one being of a special machine glazed type, and the other a standard grade. In each case the court allowed the dutiable value claimed by the importer, which is about 1 cent per pound less than that at which the customs officials fixed the proper value. In the case of the envelope kraft for Springfield envelope manufacturers the ruling was that the invoice price was correct, as it was made especially for the American market, and had therefore no home market value. In the case of the standard kraft, the court held that inasmuch as such paper is only sold in counter rolls and sheets in England, the sale in jumbo rolls for the United States made it a paper without a home value, and therefore dutiable at the basis on which invoiced.

Customs officials have refused to admit Swedish kraft wrapping at Los Angeles on the low dutiable value of 1⅓ cents.

Testimony in a test case as to dutiability of lamp shade bristol has been completed at Philadelphia. This was the second hearing on this case in Philadelphia, in addition to the hearing at New York, where domestic producers appeared.

## Union Bag Strike Settled

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., May 20, 1933—The signing of the labor agreement May 13, in Hudson Falls, when the Union men met with the head of the Union Bag and Paper Company, officially terminates the strike which has been in effect at the Hudson Falls and the Fenimore paper mills of the corporation since last May 21. Workers voted 67 to 22 to accept the proposal and return to work. According to the new agreement all former employees are to be given employment so far as jobs are available and any positions that become vacant at the Allen mill now filled by non-union workers are to be taken by the union workers. However the men now on the payroll will be kept unless they prove they are inefficient or decide to seek other places of employment.

The resumption of activities at the Fenimore mill will mean much to the business of the community as a considerable additional sum of money will be put in circulation.

With the signing of the agreement the repairs to the mill will go forward with men formerly employed by the corporation on the payroll. One paper machine is expected to be in operation in about a week and another one early in the summer, depending on the amount of wood pulp received at the mill. 2400 tons of wood pulp are now on hand which supply will last but thirty days.

The agreement reached that terminated the strike was not one in exact line with those existing in other union mills, it provides for the re-employment of former employees without discrimination of union membership by management and they may retain membership in their respective unions. The wage schedule and agreement will be in force for one year.

The dispute which threatened the removal of the bag factories from the village of Hudson Falls, was brought to a successful close through the efforts of Mayor J. A. Fitzgerald, Wallace A. Aubrey, president of the Hudson Falls Chamber of Commerce and by other village and town officials. At various times throughout the strike, Mr. Aubrey has met with President Calder in New York in an effort to bring about some settlement of the strike, and it was largely through his efforts that Mr. Calder came to Hudson Falls for the first conference several weeks ago.

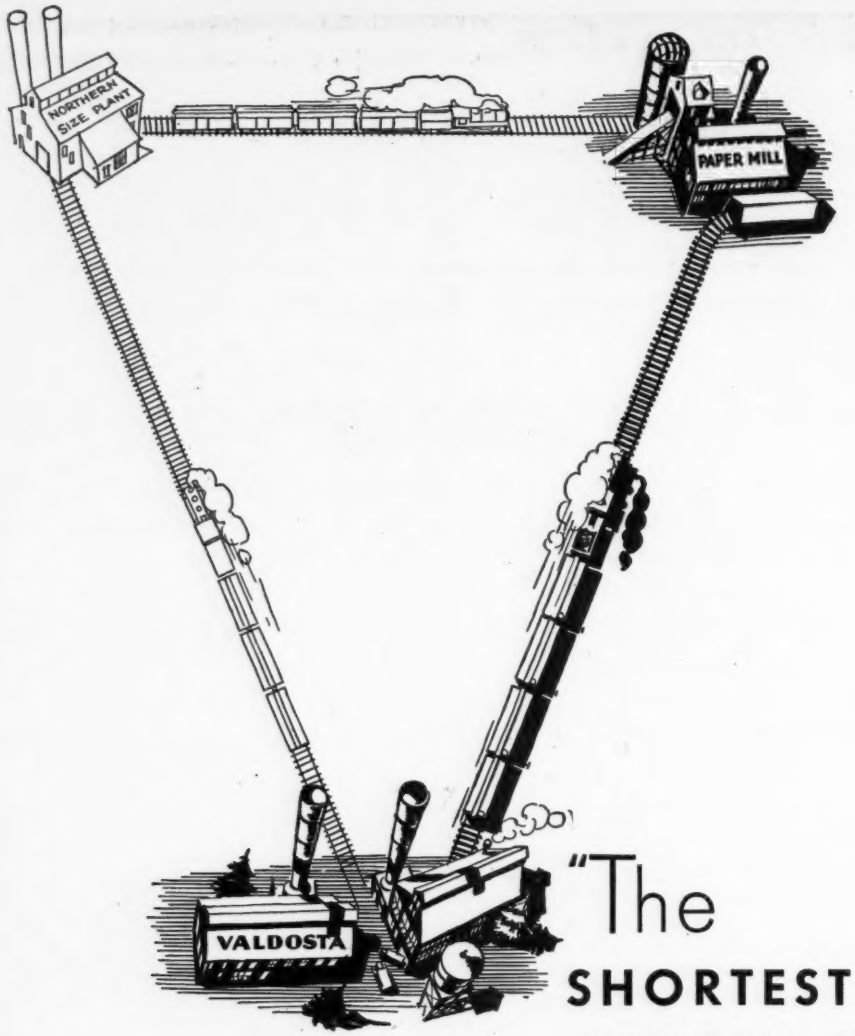
## New Eaton-Dikeman Plant Starts

The Eaton-Dikeman Company, whose paper mill at Lee, Mass., was destroyed by fire on December 2, 1932, has already started production in their new plant at Mount Holly Springs, Pa., where they purchased from James M. Miller, of Reading, Pa., the paper mill which for some time has been known as the Holly Glen Paper Company. The Eaton-Dikeman Company was incorporated in 1891 under the laws of Massachusetts by the late William H. Eaton. For many years it has been recognized as one of the outstanding producers of blotting and filter papers.

The plant at Mount Holly Springs, which they have just purchased, is well equipped to produce high grade papers of equally as fine quality as the various grades which they manufactured at Lee, Mass.

One of the favorable assets of their new location is the spring water, which analysis has shown to be of nearly as good quality as distilled water. Another important factor is the convenience of location of the new mill for shipping to their various customers.

The present officers of the company are C. C. Yates, president, who has been connected with the company since 1913; O. V. Yates, vice-president; E. A. Fairfield, treasurer; A. L. Newton, secretary and manager of sales; E. W. Dowd, superintendent, and A. T. Randall, chemist.

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

# Pulp and Paper Industry Literature Review

**Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman**

**Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.**

### Special Papers

**Process and Arrangement for the Production of Colored Designs on Board.** Ybbstaler Pappenfabriken Leitner & Bruder. Aust. pat 125,442 (June 15, 1931).—The surface of the board is first coated with a special coloring material which can be printed on, then dried, and finished in one operation or two, by passing through a friction calendar and an embossing roll.—J.F.O.

**The History of the Manufacture of Parchment Paper. A Chronological Study by an Old Paper Maker.** Wochbl. Papierfabr. 63, No. 23A: 37-41; No. 30: 570-72; No. 36: 675-79 (June 4, July 23, Sept. 3, 1932). A very comprehensive review of the history of the manufacture of parchment, from its discovery by Gaine, London, in 1853 up to the present day. Several interesting sketches are included along with all the important details in its manufacture and growth.—J.F.O.

**Process for Depositing a Layer of Bituminous Material on a Base for the Manufacture of a Water-Proof Product, for Example, Asphalt Paper.** De Bataafsche Petroleum Maatschappij, Hague. Fin. pat. 13,922 (May 28, 1929).—J.F.O.

**Process for the Manufacture of Transparent Paper.** Realisation des Brevets Francais Amoroux et Cie, Paris. Ger. pat. 551,856 (Aug. 15, 1926). The invention concerns itself with the manufacture of a transparent paper by treating parchment paper with a material making the paper transparent. The parchment paper is treated with a permanent water-clear, odorless condensation product (for example, from urea and formaldehyde) with the exception of phenol formaldehyde condensation products, then the paper is dried and heated to 120 to 150°C.—J.F.O.

**Process for the Manufacture of Resinous Plastic Objects.** J. Bauer, Swed. pat. 73,076 (June 19, 1930). The process takes place through the action of solutions of polysulphides on pine oil obtained as a by-product in the manufacture of sulphate pulp.—J.F.O.

**Process for the Manufacture of a Heat Insulation Material Composed of Wood Pulp and Paraffine.** Henri Andre. Nor. pat. 49,933 (Oct. 26, 1928). One hundred parts by weight of a stock mixture containing 95 per cent water and 5 per cent pulp is mixed with 4 parts by weight of paraffine and 2 parts by weight of linseed oil in powder or flake form, with coloring matter added if desired, and this mixture is then pressed and dried at 80°C.—J.F.O.

**Highly Glazed Card Board.** M. M. Serebryanuii. Russian Pat. 26,540 (Nov. 19, 1924). C. A. 26:6139. The high gloss of card board prepared according to Russian pat. 3112 is obtained by passing it through sheet calenders or calenders used in the manufacture of paper and without the application of agate smoothers—C.J.W.

**Making Transparent Papers.** O. Treichel. Chem.-Ztg. 56, no. 81:801-802 (Oct. 8, 1932). A new method for making a transparent paper is described. The paper is impregnated with resins under pressure and becomes transparent, although it is too dark for projection use. Recently, gelatin has been employed for the same purpose. —C.J.W.

### Machinery

**Pulp Screen.** William R. Tidmarsh. U. S. pat. 1,874,834 (Aug. 30, 1932).—The invention provides an improved and more compact assembly in which the diaphragm is carried by a metal frame and the cam shaft is positioned close to the underside of the diaphragm in bearings forming part of the frame. This permits the cam shoe fittings to be made shorter and more resistant to deflection and reduces deflection of the cam shaft by adequately supporting the shaft throughout its length in bearings rigid with the diaphragm frame.—A.P.-C.

**Treating White Water.** Alfred M. Thomsen. U. S. pat. 1,870,881 (Aug. 9, 1932).—A soluble salt of a metal forming an insoluble hydroxide, such as a zinc salt, and a soluble hydroxide such as calcium hydroxide is added, and the precipitate formed is separated from the bulk of the water; an acid such as hydrochloric acid is added to dissolve the insoluble hydroxide in the precipitate, and the product is returned to the mill circuit.—A.P.-C.

**Machine for Forming Sheets of Paper.** William H. Mason assignor to Masonite Corp. U. S. pat. 1,875,075 (Aug. 30, 1932).—The stock is fed into the top of a tall vertically disposed hopper, having perforated side walls. Endless woven wire belts travel continuously over the side walls, which converge towards the bottom, but have a space to allow the sheet to pass out between the two wires.

The sheet thus formed is pressed while it is held between the wires and is then treated in the usual way. The apparatus may be used also as a thickener or as a save-all.—A.P.-C.

**Paper Making Machine.** Earl E. Berry assignor to Beloit Iron Works. U. S. pats. 1,880,686, 1,880,688 and 1,880,692 (Oct. 4, 1932).—*No. 1,880,686*—This is an improvement on Berry's U. S. pat. 1,833,351, of July 15, 1929. The stock is delivered to the wire directly above the first one or two sections of the suction device, through a pipe extending across the full width of the machine and having a longitudinal slot along its upper side and a number of downwardly directed perforations on its lower side. Before coming on to the wire, the stock passes through a rotating, perforating cylinder, which totally surrounds the feed pipe. Uniform flow and distribution of stock is further assisted by providing a number of oscillating agitating bars, with transversely extending blades, mounted a slight distance above the forming wire. A suction couch roll, a pick-up felt and a suction press may also be used. *No. 1,880,688*—This patent deals more particularly with the oscillating agitating bars, with transversely extending blades, mentioned in the previous patent. *No. 1,880,692*—A sheet comprising two or more inseparable layers of the same or different kinds of stock is readily produced in a single operation by mounting side by side on the same machine two or more of the stock feeding devices and agitators described in the two preceding patents.—A.P.-C.

**Paper Manufacture.** William E. Bair, Jr., assignor to The Mead Corp. U. S. pat. 1,875,208 (Aug. 30, 1932).—Two-sidedness in loaded papers can be eliminated by applying a suspension of filler through the wire to the under side of the sheet at a point between the suction boxes and the couch roll.—A.P.-C.

**Dandy Roll and Supporting Mechanism Therefor.** Walter G. Trotman. U. S. pat. 1,875,526 (Sept. 6, 1932).—The dandy roll is constructed so that it is open from end to end. It is supported at its ends on brackets carrying rollers which engage grooves in the end of the dandy. These rollers are mounted on adjustable arms, so that their positions may be adjusted to handle rolls of various diameters. The brackets are mounted so that they can quickly be raised or lowered out of and into position without disturbing the adjustment of the dandy roll. The pressure with which the dandy bears on the fourdrinier wire can also be adjusted.—A.P.-C.

**Automatic Wire Screen Guide for Paper Machines.** William J. Trempe. U. S. pat. 1,879,962 (Sept. 27, 1932).—The invention provides a construction of automatic wire guides which permits, by a slight change in assembly, of using the same guide interchangeably on a right hand or left hand paper machine; the controlling pan is constructed and mounted so as to minimize or eliminate possibility of injuring the wire.—A. P.-C.

**Method of and Machine for Making Paper.** John C. Sherman assignor to Brown Co. U. S. pat. 1,880,057 (Sept. 27, 1932).—The flowing stream of stock is given a lateral component of motion by causing a wide belt to move directly under the stream in a direction substantially perpendicular to the direction of flow immediately before the stock reaches the wire. A suction is provided under the wire at the point at which the stream of pulp reaches it.—A. P.-C.

**Press Roll Gearing.** Earl E. Berry assignor to Beloit Iron Works. U. S. pats. 1,880,689 and 1,880,690 (Oct. 4, 1932).—*No. 1,880,689*—The top and bottom press rolls are both positively driven at the same peripheral speed, independently of the change in diameter of the bottom roll due to repeated grindings, by using gearing having compensating friction operated driving connections. *No. 1,880,690*—According to Metcalf's U. S. pat. 1,767,088 of June 24, 1930, the top and bottom press rolls are both positively driven at the same peripheral speed by the use of a differential gear directly connected to the lower roll and through a train of gearing to the upper roll; this mechanism has the disadvantage that, when the distance between the axes of the rolls decreases due to grinding of the bottom roll, the intermeshing gears on the two rolls no longer co-operate properly. This is overcome in the present invention by inserting in the differential train an idling pinion mounted on a suitably positioned stub shaft.—A. P.-C.

**Paper Machine.** Earl E. Berry assignor to Beloit Iron Works. U. S. pat. 1,880,685 (Oct. 4, 1932).—This is an improvement on U. S. pat. 1,599,402, of Sept. 14, 1926, and provides a construction of a removable fourdrinier table whereby it is unnecessary to handle or remove any of the tube rolls in transferring the breast roll to a suspended position prior to changing the wire.—A. P.-C.

**Suction Box Oscillating Means.** John W. Vedderl. U. S. pat. 1,881,105 (Oct. 4, 1932).—The oscillating device is driven directly from the part driving the fourdrinier wire, so that it will be stopped when the wire stops, thus avoiding damaging the wire when the latter stops. The ends of the suction boxes are secured by means of flexible springs to eccentrics mounted on a shaft parallel to the length of the suction boxes, the eccentrics being set oppositely on the shaft so that the two ends of the boxes are oscillated in opposite directions.—A. P.-C.

**Press Felt Suction Roll.** Earl E. Berry assignor to Beloit Iron Works. U. S. pat. 1,880,687 (Oct. 4, 1932).—A suction roll that is in contact with the press felt is driven at a peripheral speed different from the speed of the felt. In this way a cleaning action can be effected, in addition to the suction action, without causing excessive wear of the felt.—A. P.-C.

**Napping or Felt Conditioning Apparatus.** Mortimer F. Flynn assignor to Bird Machine Co. U. S. pat. 1,874,270 (Aug. 30, 1932).—Reconditioning of the felt is effected by applying to its surface properly pointed teeth carried by a rotating drum or roll, which is traversed across the width of the felt during the operation of the paper machine. A comb has teeth which enter between the teeth of the conditioning roll to keep the latter clean. The comb is periodically moved away from the conditioning roll and brought into contact with a stripper device provided with teeth which pass between the teeth of the comb.—A. P.-C.

**Paper Making Machine and Method of Making Paper.** Earl E. Berry assignor to Beloit Iron Works. U. S. pat. 1,880,691 (Oct. 4, 1932).—On leaving the last cylinder of a multi-cylinder machine the pick-up felt with the sheet adhering to its under side are supported on a wire passing around a suction roll. The felt, with the still adherent sheet, is then reversed in the usual way to bring the sheet on its upper side. This permits of dispensing with the usual baby presses and of transferring the sheet to the press part of the machine unsupported by the felt.—A. P.-C.

**Box Board Machine.** Walter B. Hadley assignor to Kellogg-Hadley Corp. U. S. pat. 1,881,404 (Oct. 4, 1932).—The wet felt of a cylinder machine, carrying the sheet on its upper side, is passed over a series of suction boxes. Extending over each suction box is a perforated pipe extending transversely of the direction of travel of the felt and through which hot air is blown through the sheet and felt. The several pipes are enclosed within a casing which is open at the bottom and which is supported close to the felt.—A. P.-C.

**Board Machine.** Charles L. Ellis assignor to Downington Manufacturing Co. U. S. pat. 1,879,143 (Sept. 27, 1932).—On leaving the cylinder mold of a cylinder machine (or the last cylinder of a multi-cylinder machine) the couch felt, carrying the wet sheet on its under side, is brought into contact with an endless wire travelling at the same rate, and the combined felt and wire, carrying the sheet between them, are passed through one or more suction presses. The sheet is then transferred from the wire to the usual press felt.—A. P.-C.

**Vertical Stack Driers Without Drier Felts on Fourdrinier Machines in Miami Valley.** Joseph H. Wallace. Paper Trade J. 95, No. 17: 44-48, 72 (Oct. 27, 1932).—A brief outline of the development of vertical stack feltless driers on fourdrinier machines and of the advantages of this arrangement.—A. P.-C.

**The Winding of Paper.** Anon. Non. Papeterie Belge 12: 547, 549 (Sept. 1932).—A brief outline of the merits of the latest types of winding machinery constructed by the Goebel works at Darmstadt.—A. P.-C.

**Doctor for Calendering Machines.** Herbert W. Mason. U. S. pat. 1,880,455 (Oct. 4, 1932).—The invention provides a doctor of simple construction, which can easily be made in an ordinary machine shop with the material on hand, which can easily be applied to existing calender stacks in place of the ones at present in use, and which can be adjusted both horizontally and vertically into desired engagement with the individual calendering rolls.—A. P.-C.

**Speeding up the Board Machine.** Charles L. Ellis. Paper Mill 55, No. 43: 4, 6 (Oct. 22, 1932).—Suggestions are presented regarding the design and operation of board machines that would permit of increasing their speed, more particularly the use of one or more Downington extractors and suction presses, and the substitution of wire for the top felt.—A. P.-C.

**Apparatus for Making Pulp Board.** Harold C. Harvey assignor to Agasote Millboard Co. U. S. pat. 1,881,548 (Oct. 11, 1932).—This is an improvement on Sutherland's U. S. pat. 1,536,163, of May 5, 1925. It provides a simplified construction of the mold and deckle on the press platen, and also a resilient apron (preferably of rubber composition) between the wire on which the sheet is formed and the bottom platen of the press.—A. P.-C.

**Board Machine.** George H. Ellis assignor to The Insulite Co. U. S. pat. 1,879,797 (Sept. 27, 1932).—A large suction box is floatingly or adjustably mounted over the couch felt, one end lying over the first couch roll and the other end extending a substantial distance beyond the last couch roll and over the first press roll. In this way the sheet is prevented from dropping off the felt, even though it is built up to considerable weight and thickness by means of successive cylinders. It is claimed that this permits of producing laminated sheets up to 1.5 in. thick, of uniform density, having higher tensile strength and lower heat conductivity, with a saving of about 33 per cent in raw material and at one-third the usual cost.—A. P.-C.

**Coating Apparatus.** Edmund P. Arpin, Jr. U. S. pat. 1,880,065 (Sept. 27, 1932).—The invention provides a specially constructed spraying nozzle extending across the full width of the paper machine, and placed at the end of the machine, so that the sheet may be sprayed, as it comes off the machine, with finely atomized liquid paraffin. The nozzle is mounted on a pivot so that it may be swung into a vertical position when not in use.—A. P.-C.

**Progress of the Electric Drive in the Paper Industry.** Wilhelm Stiel. Papier-Fabr. 30, No. 23: 380-87 (June 5, 1932).—The author discusses the following topics, the problem of the use of energy, turbine or piston engine, electric or mechanical drive, alternating or direct current, calender drive, electric pulp grinders, multiple motor drive for paper machines, drive for the constant units, other machines, distant control, and recording and control devices.—J. F. O.

**The History of the Development of the Wigger Wood Chippers.** R. Boemcke. Pappers Trävarutid. Finland 14, No. 17: 636-638, 640, 642, 644 (Sept. 15, 1932).—Patents for the first Wigger wood chipper were granted as early as 1889. Since then different improvements have been made and covered by patents issued to Wigger's successors. The latest constructions were placed on the market in 1930 and embody several novel features. The heavy type is constructed for round wood logs, the light type for chipping sawmill waste and the like.—C. J. W.

**Modern Wood Stave Pipe Conduits.** B. Spies. Pappers Trävarutid Finland 14, No. 17: 626, 628-630, 632 (Sept. 15, 1932).—Recent wood stave pipe constructions in America and Europe are discussed.—C. J. W.

**Suction Couch Rolls and Suction Press Rolls.** P. Vuorisalo. Pappers Trävarutid. Finland 14, No. 18: 670, 672-674, 676-677 (Sept. 30, 1932).—The installation of suction rolls and presses causes a 25-30 per cent increase in capacity of the Warkaus (Finland) news print machines. The author describes also how the height of the water column at the slice affects the properties of the paper.—C. J. W.

**Arrangement for Making Possible the Re-Use of Used Carbon Paper.** Georg Futter. Ger. pat. 550,892 (Dec. 19, 1929).—The device is provided with an arched electrical heating body and a lead roll for the carbon paper.—J. F. O.

**Process for the Manufacture of a Double or Multiple Weft Wire Cloth for Paper Machines.** R. Kastner. Aust. pat. 123,232 (July 15, 1931).—J. F. O.

**Process for the Application of a Protective and Colored Coating on Wood, Paper and Similar Materials by Treating it with Aqueous Dispersions of Various Waxes.** Berthold Redlich, Feldkirchen. Nor. pat. 49,701 (Oct. 10, 1929).—J. F. O.

**Sheet Formation Apparatus.** Per Klem. Nor. pat. 49,828 (March 26, 1929).—The apparatus consists of a cylindrical container with a removable screen.—J. F. O.

**Apparatus for the Impregnation of Paper During its Winding Operation.** Johan Langum. Nor. pat. 49,970 (June 30, 1930).—J. F. O.

**Horizontal Screen and Thickening Apparatus for Pulp, and Similar Substances.** Arne Blakstad & Wessel Waal. Nor. pat. 49,899 (March 25, 1926).—J. F. O.

**Process for the Washing of Pulp.** L. J. Dorenfeldt. Nor. pat. 44,954 (Aug. 21, 1925).—The washing takes place in the digester at a temperature over 100°C.—J. F. O.

**Couch Press for Paper Machines and Similar Objects.** Peter Bergsvensen. Nor. pat. 49,968 (Sept. 30, 1929).—A roll is used as the top couch press roll, consisting of an inner cast iron mantel, around which a special covering is provided.—J. F. O.

**Process and Arrangement for the Removal of Sheets of Paper of Various Conditions, Especially the Separation of Damaged Places in a Sheet of Paper.** Viktor Piatnik. Aust. pat. 126,837 (Oct. 15, 1931).—J. F. O.

**Process and Arrangement for Piling Fiberous Materials.** Franz Krenn & Ernst Buchhaas. Aust. pat. 126,812 (Nov. 15, 1929).—J. F. O.

**The Nomy Bearing.** G. Wallgren. Svensk Papers-Tidn. 35, No. 17: 589-590, 593-598 (Sept. 15, 1932).—A new type of journal bearing and its special features are described in detail.—C. J. W.

**Arrangement for the Cleaning of Flat Screens.** Aleksander Lampen. Fin. pat. 14,126 (May 5, 1930).—J. F. O.

**Vacuum Screen for Pulp.** M. J. Magnussen. Nor. pat. 50,320 (July 18, 1929).—J. F. O.

**Concerning the Difficulties of Operation with the Ordinary Digester Safety Valve and the Elimination of Such Through the Adoption of a New Valve Construction.** Reinhard Wolf. Papier-Fabr. 30, No. 26:421-25 (June 26, 1932).—A valve is described in which the sticking of the seat of the valve is avoided, by means of a shower of water and the back pressure developing towards the end of the cook while relieving the gas is equalized. The author discusses existing valves used for this purpose and then by means of much operating data and diagrams and illustrations shows the superiority of this new valve. —J. F. O.

## Valley Iron Works Joins TAPPI

A worthy addition to the company membership of the Technical Association of the Pulp and Paper Industry, is the Valley Iron Works Company of Appleton, Wisconsin.

The Valley Iron Works Company came into existence on March 26, 1900, at which time it took over the assets of the Valley Iron Works Manufacturing Company, which company at the time was engaged in the building of pulp and paper mill machinery.

The officers of the new corporation were George Brill, president; A. L. Smith, vice president; and S. G. Hobert, manager.

In September, 1900, E. A. Peterson became secretary and treasurer of the company. In 1906 W. H. Burns, present sales manager of the company, became Secretary and E. A. Peterson became treasurer and manager. In 1921 a further change in personnel was effected, the new officers being as follows: E. A. Peterson, president and general manager; Ernest Mahler, vice president; W. H. Burns, secretary; R. S. Powell, treasurer, and R. A. Peterson, assistant treasurer. In 1928 R. A. Peterson replaced Mr. Powell as treasurer.

During the past 32 years, or since the inception of the company, its plant has been consistently enlarged and improved from time to time, as conditions warranted, until it reached a stage where under normal conditions it employs 25 men.

Great care and attention has been paid to the mechanical equipment of the company, as a consequence of which the plant contains some of the best machinery obtainable for the purpose of building quality machines for the pulp and paper industry. The Valley Iron Works Company produces a varied and comprehensive line of equipment used by pulp and paper mills. Some of the more important items included, are as follows:

Agitators and agitating equipment, Voith and Van de Carr high pressure stock inlets, tanks, centrifugal pumps for stock, water and acid, beating engines, bleaching engines and washing engines, plunger pumps—single, duplex and triplex type, barking, chipping and rechipping equipment for pulp mills, cylinder paper machines complete, Jordan engines, stock regulators, Voith screw presses, breaker and continuous beaters, sulphur burners, valves—special and quick opening types, deckers—single and double types, loft dry machines, diaphragm screens for both pulp and paper, Thune screen for pulp, pulping engines, press rolls, revolving and reciprocating chip screens, knot screens, paper shredders, water marking devices, wet machines, laboratory equipment for strength testing, specialty machinery.

All of the sales representatives of the company are technical men familiar with the problems of pulp and paper making. During the past year the company installed a research laboratory which is under the direction of a competent electrical and mechanical engineer with a number of years of practical paper making experience to enable him to better serve the company's clients in the problems which confront them relative to machinery requirements. Facilities have been installed for actually testing out a number of pieces of equipment built by the company.

The Technical Association recently adopted a method of testing pulp wherein the pulp is processed in a laboratory beater. The Valley 1½ pound beater is used for this purpose and considerable study will be made of this piece of equipment to enable laboratory men to attain the highest possible precision in making the beater test for pulp strength.

The company maintains a sales office serving the Eastern territory at 350 Madison Avenue, New York. Harry Bennett is Eastern sales manager.

The Valley Iron Works Company expresses the wish to be of real service to the paper industry and will welcome opportunities to cooperate in the development of machinery for pulp or paper manufacture.

## TAPPI Notes

The Lake States Section of the Technical Association of the Pulp and Paper Industry met at the Rainbow Gardens, Kimberly, Wis., on Tuesday evening, May 9th. The program was largely social in nature and was replete with boxing bouts, musical entertainment, etc. An enthusiastic invitation was extended to TAPPI to hold its fall convention at Appleton, Wisconsin, in September.

W. M. Hayes, formerly of the Consolidated Water Power and Paper Company is now on the research staff of the Rhinelander Paper Company, Rhinelander, Wis.

Ray Hatch, formerly technical director of the Pulp Bleaching Corporation is now director of research of the Weyerhaeuser Timber Company, Longview, Wash.

James Ramsay, formerly superintendent of the Jessup & Moore Paper Company, is now general superintendent of the Everett Pulp and Paper Company.

Bror N. Segerfelt, formerly chief engineer of Ignace Spiro & Son, Czecho-Slovakia, is now technical director of Cartiera di Tolmezzo, Tolmezzo, Italy.

The Canadian Technical Section will hold its summer meeting at Three Rivers, P. Q., June 22nd and 23rd. Headquarters will be at the Chateau de Blois.

The German Technical Association will hold its spring meeting on May 29th and 30th at Wiesbaden, Germany. The committee on pulp testing will have a session in Darmstadt on May 28th. Dr. Posanner von Ehrenthal will describe the new sheet forming machine developed at Kothen. All members of TAPPI are invited to attend as guests.

The Delaware Valley Section of TAPPI will holds its May meeting at the Engineers Club, Philadelphia, Pennsylvania, on Friday evening, May 19. Dr. H. C. Schwalbe of Dill & Collins, Inc., will lead a symposium on pulp testing.

The International Association of Bone Glue Manufacturers have announced that awards of 20,000 Swiss francs will be made to any chemist, inventors or others, who can present new uses for glue in the manufacture of products in which glue has not heretofore been used or for the improvement in processes already using bone glue, which will permit the development of its use. The competition closes February, 1934, and is open to all who may care to compete. The competition is held under rules and organized by the Secretariat of the Epidos Glue Competition, 57 Rue de Chateaudun, Paris, France.

The Printing Industries Division of the A. S. M. E. will hold its fourth annual conference in the Palmer House, Chicago, Illinois, June 26 and 27.

# Two-Stage Continuous Batch Beating and Automatic Beater Room Operation*

By C. W. Morden[1]

In a paper presented at the annual meeting of TAPPI in New York City, in February, 1932, the writer discussed "Continuous Batch Beating" and the Stock-Maker a vertical type, automatic beating machine employing the continuous batch method.

The continuous batch method of beating is a Pacific Coast development and the Stock-Maker a Pacific Coast product, so it may, therefore, be of particular interest to the Pacific Section members of TAPPI to hear of some further developments in this beating method and equipment and of a broadened field of application for this type of treatment.

Single-stage continuous batch beating has now been in very successful mill operation for over two and one-half years on a wide range of papers. As a result many of you know something of this beating method and of the machine employing it. However, it may be well to again briefly state the essentials of the method as follows:

### Principles of Continuous Batch Beating

The Continuous Batch method consists of automatically drawing off at timed intervals from a continuous supply a measured batch quantity of stock and introducing it under pressure into a recirculating type treating cycle, giving it a rubbing and brushing treatment therein under high hydrostatic pressure for a pre-determined time and then automatically discharging it from the cycle by displacement with the next batch of untreated stock introduced.

The fundamentals of this principle of treatment are now used not only in single-stage treatment as in the past, but also in multi-stage treatment and Stock-Makers are now built in single-stage, two-stage and twin two-stage type machines embodying this principle in their operation. In this enlarged application of the continuous batch method of treatment are included new principles and new elements of control of the treatment which it is one purpose of this paper to discuss.

In order to get a picture of the situation let us first consider the make-up and operation of a single-stage treating element.

### The Treating Element and Its Operation

Fig. 1 shows the internal arrangement of the treating element. Arrows indicate how the stock is recirculated while being treated.

The treating element consists of a conical shaped rotor with a bed plate shell surrounding it. This bed plate shell may be adjusted up or down by the hand wheel shown in the illustration of the complete machine. This adjustment regulates the treatment given the stock. Outside the bed-plate shell is another shell, separated from the bed-plate by a space which forms an annular passageway through which the stock is uniformly recirculated during treatment. This passageway also serves as a displacement chamber from which treated stock is displaced when a new batch of raw stock is introduced into the machine.

The impeller above the rotor draws in this raw stock from the machine's accumulator tank at timed intervals, and at the same time forces the treated stock out of the machine through the automatically operated discharge valve. This impeller also maintains the hydrostatic pressure within the treating element. Recirculation during treatment is maintained by the pumping action of the conical rotor which draws the stock up between the rotor and bed plate shell and then returns it through the annular circulation passage to be treated again, or, when the treating period is over, to be forced out of the machine.

A two-stage stock-maker unit is shown in Fig. 2. This is a high capacity machine, having the beating capacity of 4-1500 pound beaters.

To consider the new principles in beating technique that enter into the operation of such a machine, let us first consider the make-up of this two-stage unit. It has its two treating elements, of the type shown in the sectional drawing located one above the other with their rotors connected together and both driven by the motor on the top of the machine. The intake of the top treating element connects with the accumulator tank at the side of the machine into which the stock to be treated is delivered. The outlet at the bottom of the top treating element connects directly to the inlet of the lower treating element and the outlet of this element leads out at the bottom of the machine through an automatic outlet valve. This valve opens at timed intervals to let a batch of stock out of the machine and then closes and seals the stock in the machine under pressure during the time it is being treated. Hand wheels control the setting of the bed plate shell in each treating element and thus the amount of work done in terms of power input can be regulated and controlled separately for each of the two treating elements of the machine.

With this much by way of a description we may now consider wherein such a two-stage series hook-up differs in its operation and the control of the treatment given from what might be ordinarily expected.

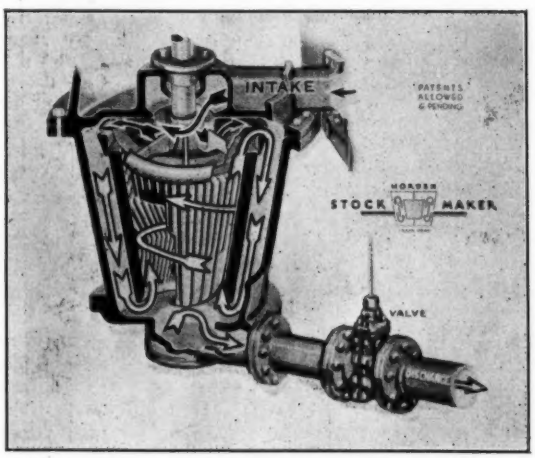


FIG. 1.
Treating Element.

* Presented at the Spring Meeting of the Pacific Section of The Technical Association of the Pulp and Paper Industry, Longview, Washington, May 5-6, 1933.

[1] Member TAPPI, president Morden Machines Company, Portland, Ore.

Mechanically such a machine is a two-stage unit but in its operation it may be made to function either two-stage or single-stage or as a combination of the two. In other words, if the stock conditions or the results wanted are such that it is not desired to treat in two stages a single-stage treatment may be given in the two-stage machine or a blended treatment may be had where part of the stock is given two-stage treatment and part of it single-stage. This is controlled entirely by the quantity of stock that is automatically measured into the batch going to the machine. It should be recalled, from the description of the single-stage treating element which has already been given, that when a fresh batch of stock enters the machine it is first forced into the displacement chamber which surrounds the treating element proper and displaces treated stock therefrom. This displacement chamber is the feature of the machine that makes it possible to obtain the types of treatment referred to simply by controlling the batch going to the machine. For example, if only sufficient stock is included in the batch to fill the displacement chamber in the first stage of the machine this gives full two-stage beating in the machine as a whole, for this batch quantity is first treated in the first stage of the machine and when it is displaced from this stage by the next incoming batch of untreated stock it is forced into the second stage and there given its second treatment. If however, the batch quantity introduced into the machine is doubled it will displace treated stock from the displacement chambers of both the first and second stages of the machine with the result that each of these stages is then working on untreated stock and the effect is the same as if the two-stages were being run in parallel. In the same way, by changing the quantity of the batch so that it is intermediate in volume between that for two-stage and for single-stage treatment a blended treatment is obtained in which part of the stock is given two-stage treatment and part of it single-stage and the two thoroughly mixed. Thus any type of treatment may be given that a particular stock or a particular result calls for.

Staging stock-maker units in this way has the effect of increasing their capacity in direct proportion to the number of stages used. The two-stage machine, for example, has twice the capacity of the single-stage and the twin two-stage machine has four times the capacity of the single-stage. In this machine two two-stage units are combined into a single machine with its automatic features so arranged that its batches of stock are introduced in proper sequence, first to one of the two-stage units and then to the other. The effect is that of running two two-stage machines in parallel. These staged machines retain the high power economies of the single-stage machine which, for a given amount of treatment, averages approximately one-half that of tub beaters. In terms of tonnage of stock handled for a given degree of treatment each stage has a capacity equal to that of 2-1500 pound beaters, so that the single-stage machine is equivalent to 2-1500 pound beaters, the two-stage to four and the twin two-stage to eight. The two-stage machine occupies the same floor space roughly 4½ x 6 feet, as does the single-stage machine, and the twin two-stage machine a floor space roughly 5 x 12 feet—in other words, approximately one-twentieth the floor space that would be required by tub beaters.

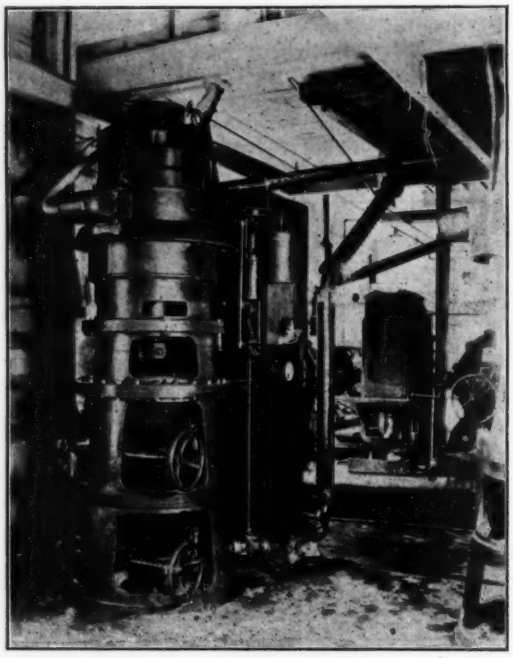

FIG. 2.
Two Stage Stock-Maker.

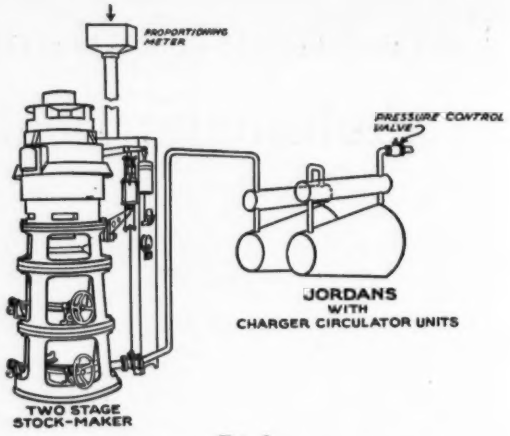


FIG. 3.
Continuous Batch Charger Circulator Unit.

That this method of beating uses much less power and produces better paper than the regular beating method with better all-around strength development and a much closer control both of the beating and of the paper machine operation has been proven by many mill performance tests on kraft, soda, sulphite, and rag content stocks and by the daily production in regular mill service of consistently high quality paper in many of the standard grades. In making the performance tests referred to these were made on as nearly a directly comparative basis as possible by connecting up the equipment so that a part of the test on a given furnish could be run by the regular method and the balance with stock-maker treatment.

To this point we have considered multi-stage continuous batch beating treatment without reference to the jordan treatment that follows it.

Now, however, there has been developed a further application of the continuous batch treating method by which it is applied to the jordan treatment which follows the stock-maker treatment.

Jordans are regularly used after stock-makers to provide for such cutting action as the stock may require. The action of stock-maker is that of brushing and rubbing the fiber rather than a cutting action and for such cutting as is required the jordans are used.

**Continuous Batch Jordan Treatment**

The application of the continuous batch method to

jordans has the effect of permitting them to operate on a recirculating, sealed-in pressure cycle, timed to that of stock-maker, and permits the maintenance of a high controlled hydrostatic pressure in the jordans, with normal power usage and without excessive end thrust of the jordan plug. This elimination of excessive end thrust is due to the balanced pressure affect of the stock-maker method of charging the jordans. By this method the jordans are always running full of stock and maximum results and more flexible control of the jordan treatment are made possible.

If two jordans are used in this way, each equipped with a continuous batch charger circulator unit as shown in Fig. 3, either single-stage, two-stage or a blended treatment may be obtained with them as determined by the type of treatment for which the stock-maker ahead of them is set. One advantage of this arrangement is that the hydrostatic pressure which is developed in stock-maker is carried through to the jordans and the jordans can thus be pressure operated with normal power usage. The amount of this jordan pressure may be varied as desired and if wanted can be made as high as 45 pounds when a two-stage unit is used ahead of the jordans.

Thus both beating and jordan treatment may be logically tied in together and made fully automatic and closely controllable.

### Automatic Beater Room Operation

The next step, in order to make the entire beater room operation automatic is to provide for automatic delivery and metering of all of the elements that go into the stock furnish.

A proportioning meter for this purpose would be located just ahead of stock-maker as indicated in Fig. 3.

A proportioning meter for this purpose is now under development but its details will not be further discussed in this paper.

Many modifications in the arrangements and details of this system of stock treatment may be made to best suit particular mill conditions but these we shall not attempt to discuss in this paper.

United States and foreign patents have been allowed covering the methods and equipment used and these, with patents now pending and being applied for, fully cover the details of this type of stock treatment.

### Advantages of Continuous Batch Treatment

The features of continuous batch beating that have been discussed herein point the way to an automatic beater room operation with many obvious advantages. Among these are the reduction in the size of the beater room to one-tenth or less of its present size; a power saving of 50 per cent as compared with tub beaters; closer and more quickly responsive control of all the elements entering into the stock treatment and the ability to readily adjust the treatment to the characteristics of the stock and to the results that are wanted in the paper.

Such treatment in the beater room obviously permits close and rapidly responsive control of the sheet on the paper machine wire and gives safer running on the paper machine and, as a final result, produces a better quality and more uniform paper.

The excellent results obtained by the mills using this type of beating, since its first installation in 1930, have fully proven its advantages.

# A Permanent Supply of Pulping Woods in the Pacific Northwest*

By J. B. Woods[1]

A great many wild statements have been made about the available timber in the Pacific Northwest, and it is probable that even the wildest guess falls below the actual facts. Particularly is this true after we give effect to the productive capacity of our forest soil over a long period of years.

A short time ago we limited our discussions of pulping woods to a very few species of wide distribution and a larger number of species of very narrow distribution, the total aggregating probably not more than 25 to 30 per cent of the forest growth of this region. That is to say, when discussing pulp woods we spoke of Sitka spruce and hemlock as the principal species, quite widely distributed, and we included in a very minor role the several true firs or Abies, cottonwoods and white pine, because these were relatively scarce and often decidedly inaccessible at the moment. But now it appears that we may bring into the picture the single species of most plentiful abundance, namely Douglas fir, and that fact certainly enlarges tremendously the scope of our mental excursions when we start to visualize the future of pulp and paper making in the Pacific Northwest.

Just to give a rough idea of the volume of growing timber in the two states of Washington and Oregon, I will present the latest estimates provided by the Forest Service and giving timber considered merchantable for lumber manufacture and pulping under present standards of utilization:

Acres of forest land in Pacific Coast region 50,000,000 acres.

Merchantable softwoods 1,233 billion board feet or two billion cords. Douglas fir constitutes about one-half of this in the region.

In Washington and Oregon we find 62 per cent of the above total stand of which portion two-thirds is Douglas fir.

This then presents a picture which you, with your greater knowledge of plant requirements, can digest without any help from me. These standards of utilization involve, of course, competitive market conditions as influenced by raw materials in other regions, as well as raw material demands of other industries in this region. We know, for example, that the logger ordinarily sells part of his output to the saw mill and part to the pulp mill, and that today he leaves a considerable volume of material in the woods. The two factors which can most readily change this situation for him are better prices for raw materials and cheaper methods of bringing the materials out of the woods. A slight increase in the return to the logger through either of these methods may increase his yield per acre of merchantable material by anywhere from 10 to 25 per cent. It appears then that we have a tremendous reservoir of raw material not included in present estimates, because of costs of extraction.

Another great reservoir which, however, is included in

* Presented at the spring meeting of the Pacific Section of the Technical Association of the Pulp and Paper Industry, Longview, Wash., May 5-6, 1933.

[1] Forester, Long-Bell Lumber Company, Longview, Wash.

these government estimates, is found in the back country remote from existing plants and unavailable for use at the moment. It is a question in my mind whether these remote stands in general should be operated until such time as we have accomplished a very much more complete utilization of the raw materials in our more accessible forest areas. In other words, if the operators logging into the Columbia River are leaving 50 per cent of the wood fiber volume on the ground to be destroyed by fire and decay, it would seem much sounder from every standpoint for us to promote 90 or 95 per cent utilization of their stands before we force on to the market some of the more remote stands in the national forests. While this may seem a far fetched illustration, the fact is that the sale policy of the Forest Service might conceivably do just what we have mentioned. The suggestion therefore is seriously made.

We of course know that Pulp manufacturers in other parts of the country have acquired timber properties and in a good many cases have deliberately planned for replacing, by growth, the raw materials which they use. This is a familiar development in the Southern states during the past ten or fifteen years and much has been said about the great productive capacity of Southern lands in terms of loblolly and slash pine. Having personal contact with several of these reforestation projects, I am quite enthusiastic over their possibilities, but it is my firm belief that the best of our Northwestern lands can produce year after year from 20 to 30 per cent more volume than the best of our Southern lands. So, after giving effect to possible greater costs of extraction and to greater distances from markets, it is probably safe to say that this region has at least as fair conditions for permanent production or sustained yield as does the South.

In terms of tree growth the better class of forest lands on the Pacific Coast which, by the way, probably aggregate not less than twenty million acres, can produce over a reasonable rotation period an annual growth increment from 1½ to 2 cords of sound wood fiber.

### A Thinning Experiment

A few years ago I conducted a thinning experiment on a small piece of land of the sort under consideration, upon which a young Douglas fir and hemlock forest had been growing for 35 years. The purpose of the experiment was to take out one-half of the stand in terms of basal area and remove as near as might be one-half of the leaf canopy, so as to permit the remaining trees to grow more thriftily. We cut the trees into fuel wood and sold them as such, and our final result was 28.2 cords per acre, although actually we had not removed one-half of the stem volume of the stand. This shows that these Western lands can and do produce tremendous annual increments. In the present instance the fact that surprised us most was that the average height of the trees in this young stand was about 95 feet, which is a very respectable tree length for a mature stand anywhere else in the United States. Given 20 million acres of well managed high grade forest land in these two states and northern California, and you can produce 20 to 40 million cords of wood per year perpetually. Given another 20 to 30 million acres of land not so good, but still best suited for growing timber, and you can add another annual increment of 15 to 20 million cords. These two items represent a colossal reservoir of material for pulping notwithstanding the natural and necessary raw material requirements of other Northwestern wood using industries.

Of course, here in this green land we can speculate about a future in which much of this area will be converted into farms and withdrawn from timber production, but it seems to me that in a well ordered land-using scheme such as may be expected to come with growth of population, we shall still use a very great percentage of our Pacific Coast lands for timber production because their earning power for this purpose will be greater than for farm crops, and because we have other great areas susceptible of irrigation which will, in the long run, prove to be more economical for farming purposes.

### Fire Protection

For years now we have been developing fire protective organizations because we have found that if we can control fire we achieve reasonably rapid reproduction after logging. Fire, as you may or may not know, is our worst enemy during the dry summer months, and strangely enough its greatest losses usually occur in that border zone where the forests and cut-over lands join and where logging debris offers perfect fuel. This question of fire prevention and suppression is a problem in itself and can scarcely be mentioned here, other than to state that the future of our timber supply is dependent upon keeping this problem whipped. The year 1932 was the most favorable year we have experienced in this state for a long period. The year 1933 bids fair to bring a new factor into the picture through the introduction of some thirty thousand forest workers in camps throughout the region. We believe that with proper supervision these men will constitute a very material aid in combating fire and that the results may be marked enough to focus attention of Congress upon a continued policy of very much more generous fire fighting appropriations for these Western states. In fact, there is good reason to believe that forest growth in this region may be placed upon a safety basis that will very materially improve its investment status.

### No Technical Difficulties

There are many ways to recreate forests and most of them have been tried here on the Coast and shown to be feasible, so that I do not anticipate any great technical difficulties in changing over from a haphazard treatment of our forest areas to orderly forest management and the rotation of crop after timber crop.

Naturally enough, the present depressed cycle has greatly reduced private attempts at reforestation, but as soon as business revives and money becomes available, these programs undoubtedly will be resumed. There is no question in my mind but that growing of forests to sustain a permanent wood using industry of any character capable of using the species which thrive best in this great region, is economically sound even at present, and will become more so as business conditions revive.

Even if we limit our pulping operations to such favored locations as may be found along tidewater, there remains a very considerable area of forest land of the very highest growing capacity which should remain under forest crops to perpetuity. Anyone who is determined to foresee these coast lands given over solidly to industries and agriculture should look at the forests of the Rhine Valley, and of our own New England, where they persist and even tend to increase despite relatively poor growing conditions.

If we estimate that ten million acres of land are properly tributary to these tidewater millsites or the moving of raw forest goods, and if we eliminate a third of this area as being needed for other uses during the next century, we still have a potential productive capacity of some ten million cords per year. This annual growth can best serve the pulp manufacturers and the lumber makers in communities with the result of practically complete utilization. So, I would say in conclusion that a study of our present standing timber is but a part of the picture.

# Moisture Content Measurements*

By T. E. Heppenstall[1] and H. A. Hauff[2]

**Abstract**

*The purpose of this paper is to briefly discuss various adopted and proposed moisture testing methods adaptable to the paper and pulp industry, and to present recent progress in the use of an electrical moisture meter. Paper and pulp moisture is usually determined analytically by oven drying, but during the last few years methods using humidity, optics and certain electrical principles have been proposed.*

The control of moisture is an important factor in a variety of manufacturing processes, there being particular reasons for given specifications of each product. Paper is dried to such a degree that it will be in equilibrium with the humidity of the air in which it is to be used. Your cigar and cigarette must not be too dry nor yet too moist, or you will change your brand. Lumber will shrink and leave unsightly cracks if not properly dried. The farmer's grain must be drier than 14 per cent or it is liable to sour, but not too dry or the miller must add water to mill it properly, and so on from soup to nuts, the proper moisture content often is the determining factor in a profit or loss.

### The Oven Method

This method consists of weighing the sample and drying it in an oven until all moisture is driven out, and then reweighing. This method is the adopted standard, and perhaps is the most accurate of all. However, it has the disadvantage of requiring considerable time and therefore delay. It is essentially a manual measurement and impractical of attachment to a machine and made automatic. The accuracy is relatively high over the full range of moisture content usually found in pulp and paper, but any error, human or instrumental, may cause very erroneous results. Because of the extreme hygroscopic nature of the product, all weighings should be done in closed containers; oven temperature must be carefully controlled to avoid under drying or burning; and lastly, rather cumbersome mathematical calculations must be made before an accurate figure can be determined. Inasmuch as 12 to 24 hours are required for careful drying, this method cannot be classified as rapid.

### The Humidity Method

The humidity method of determining the moisture content of paper is a development that has had some success during the last few years. The principle of operation depends upon measurement of the relative humidity of the atmosphere in contact with, and controlled by, the moisture content of the paper. The instrument is usually attached to the paper machine at the dry end and the relative humidity is determined by various means, probably the best known being that in which a rayon ribbon is placed in close proximity to the paper surface and its shrinkage and expansion, due to the humidity, measured by a delicate instrument. In some installations this consists of a very delicately balanced lever with mechanical multipliers operating an indicating needle showing the slightest changes in dimensions of the rayon ribbon. As this variation is dependent upon moisture, a rough estimation can be obtained. Possibly the most successful instrument of this type uses a condenser in a vacuum tube circuit, having one movable plate mechanically attached to the rayon ribbon. Slight movements in the condenser are highly magnified on the plate circuit of the tube with sufficient power to operate relays and control the steam to the driers, thus making their operation automatic.

Still another means of measuring the humidity in the rayon tape is to support it between two fixed plates of the condenser, thus measuring its dielectric properties under various conditions of moisture content. The ribbon in this case is in the form of a belt supported by pulleys, with one side running close to the paper and the opposite passing between the condenser plates. In this manner the condenser plates are shielded from the paper and are less liable to breakage and errors from static.

Another system draws the air, by means of a small fan, from the surface of the paper to a box containing a wet and dry bulb controlling hygrometer.

This method of determining moisture content by measurement of the humidity of air surrounding the paper has the obvious advantage that it can be attached to a paper machine, making automatic control of the moisture possible within certain limits. It has, however, the disadvantage that its accuracy is not all that is to be desired, and thus has not met with complete success, although the method has been used for several years. Although the humidity method covers a relatively short range of moisture measurement, its excellent possibilities for the control of paper driers will no doubt lead to many sussequent improvements.

### The Optical Method

The optical method, although not widely used, is based on the theory that transparency of a sheet of certain papers varies with the moisture content. A beam of light, of known intensity, is focused on the sheet of paper as it is manufactured, and by measuring the intensity of the transmitted beam by means of an electric photocell, it is possible to determine the moisture content. It is understood that its use is limited to only certain types of paper.

### The Electrical Method

In general there are two principles upon which the present electrical moisture measuring devices are based, viz., capacity of dielectric properties and conductance. As the dielectric content of water is approximately 80 and that of the cellulose about 10, a small variation in moisture will cause a large variation in the resultant. The paper passes between two condenser plates suitably connected with an inductance in the grid circuit of a vacuum tube. Variation in the amount of moisture in the paper changes the capacity of the condenser, which is measureable and can be calibrated to read moisture directly. A disadvantage of this method is that the absolute moisture, rather than the relative moisture, controls the capacity, thus resulting in errors through variations of thickness and basis weight of the paper.

### The Electrical Conductance Method

Finally, the conductance method, with which this paper is primarily concerned, has been in practical use for several years in many other industries. It is probably the oldest and contains the simplest method of measuring moisture content electrically—yet obviously overlooked. It consists of measuring the electrical conductance, or its

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* Presented at the spring meeting of the Pacific Section of the Technical Association of the Pulp and Paper Industry, Longview, Wash., May 5-6, 1933.

[1] T. E. Heppenstall, Research Engineer, Long-Bell Lumber Corpn., Longview, Wash.

[2] H. A. Hauff, Chemist, Weyerhaeuser Timber Company, Longview, Wash.

reciprocal resistance of the material to be tested. In its simplest form, it consists of a source of power, an ammeter and a pair of electrodes, changes in specifications of each or of all parts being necessary to serve each particular condition. If portability is desired a self contained battery is incorporated in the instrument, or, in the case of a fixed location, it may be designed to operate from a lighting circuit. With regard to the ammeter, if the moisture content to be measured is high, an ordinary laboratory ammeter is sufficient; but, if very low, a galvanometer, or vacuum tube instrument, is necessary. The electrodes must be designed specifically for the material to be tested and this feature seems to be the most important factor in the measurement of moisture content by electrical means. It has been the stumbling block and is no doubt the cause of the failure of this method in the past.

The instrument (Fig. 1) uses an electrode primarily designed for the determination of moisture in wood veneer, but tests recently completed at the Weyerhaeuser pulp mill at Longview, Washington, indicate that this instrument is practical for use in determining the moisture content of wood pulp. Tests made by the writers indicate that it is equally accurate for paper as well.

The electrode consists of a large number of needles,

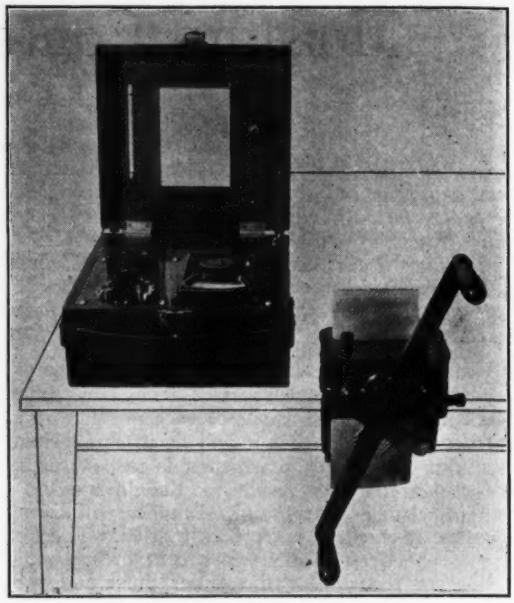

FIG. 1.
**Tag-Heppenstall moisture meter for pulp and paper.**

which penetrate the paper from opposite sides, so that the current passes through the interior of the paper in a direction parallel to the surface and through a multitude of paths. By this means of contact, variations in thickness, moisture gradient and surface dryness are to a great extent minimized.

The paper is placed between the jaws of the electrode and the needles forced in from opposite sides by means of a crank (see Fig. 1). The electrical conductance is then read from the meter, and, by use of a curve (see Fig. 2), or table, the moisture content is determined. The entire operation requires less than a minute.

Reasonable variations in thickness and weight of paper appear to have but little effect on the moisture measurement with this meter. In wood, where wide variations in specific gravity and species occur, this was also found to be true.

Temperature changes, however, have a marked influence on the electrical resistance, and correction factors are necessary when the paper is measured at widely varying temperatures. In general a change of one degree Fahrenheit requires a correction of .05 per cent in moisture content.

The paper moisture meter has the same electrical circuit as the grain meter, which has proved very dependable in its field. This is now used by the U. S. Dept. of Agriculture at all of its inspection centers, and several are in use by our two largest tobacco companies to help make your smoke mellow and banish harsh irritants.

The paper moisture meter has been given several months test in the laboratories of the Weyerhaeuser Timber Company's Pulp Mill at Longview, Washington. Pieces of pulp of various moisture contents, ranging from 105 to 76 per cent a.d. were brought to room temperature in covered cans and each piece tested with the electric paper meter. Then the moisture was determined by oven drying. Table 1 shows the results of six different series of tests. The object of making these tests was to determine if the instrument would be suitable for use as a quick means of testing pulp. It was considered that an error of plus or minus 1 per cent would be "acceptable" and that errors

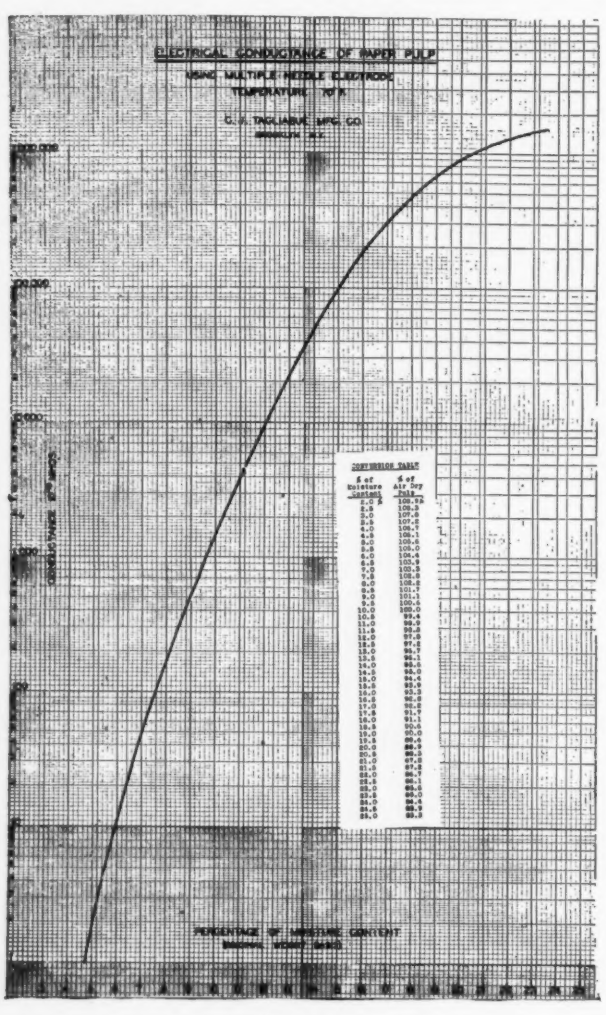


FIG. 2.
**Electrical conductance of pulp using Tag-Heppenstall electrode for pulp and paper.**

greater than plus or minus 2 per cent should be considered "wild".

TABLE I

TEST OF PULP WITH TAG-HEPPENSTALL MOISTURE METER ELECTRIC METER VS. OVEN METHOD

| Deviation In Per Cent Moisture | Number of Tests | Per Cent of Readings |
|---|---|---|
| > + 2.0 | 10 | 2.3 |
| + 2.0 | 9 | 2.1 |
| + 1.5 | 24 | 5.5 |
| + 1.0 | 53 | 12.1 |
| + 0.5 | 61 | 14.0 |
| ± 0.2 | 125 | 28.6 |
| — 0.5 | 52 | 11.9 |
| — 1.0 | 68 | 15.6 |
| — 1.5 | 19 | 4.2 |
| — 2.0 | 7 | 1.6 |
| > — 2.0 | 9 | 2.1 |
| Totals | 437 | 100.0 |
| Percentage of tests "acceptable" | | 82.2 |
| Percentage of tests "wild" | | 4.4 |

As stated above, Table I is a summary of a series of six different sets of tests, but a particularly interesting feature of these tests was the fact that each succeeding test showed a lower percentage of "wild" readings, and generally speaking, the percentage of "acceptable" readings increased This can be explained by the improvement in technique as the result of experience gained in making the previous tests.

TABLE II

SHOWING INCREASED ACCURACY AS A RESULT OF IMPROVEMENT IN TECHNIQUE OF OPERATING THE TAG-HEPPENSTALL MOISTURE METER FOR PULP

| Test No. | Number of Samples Tested | Acceptable Tests Per Cent | Wild Tests Per Cent |
|---|---|---|---|
| 1 | 121 | 80.2 | 10.8 |
| 2 | 84 | 78.6 | 4.7 |
| 3 | 73 | 75.8 | 2.7 |
| 4 | 57 | 93.0 | 0.0 |
| 5 | 43 | 97.7 | 0.0 |
| 6 | 59 | 89.8 | 0.0 |

Not only did the three last series of tests show no wild readings, but the greatest deviation was 1.5 per cent.

The conclusion drawn from these tests so far as pulp is concerned were as follows:

1.—In general 86.9 per cent of all readings will be correct within ± 1.0 per cent a.d. from 105 to 87 per cent a.d.

2.—3 per cent or less of all readings will show over 2 per cent error;

3.—This curve holds for bleached and unbleached sulphite pulp taken from the same source. Other paper and pulp may follow a slightly different curve;

4.—As the operators' technique increases, deviations become less. The last 159 samples run contained only one sample off over 1.5 per cent and 147 correct, within plus and minus 1.0 per cent.

5.—This instrument would be admirably suited for quick tests.

### Dependability of the Electric Moisture Meter

While this instrument has not been recognized by the pulp and paper industry, the Department of Agriculture anticipates its adoption as the official method for moisture determination in grain. In trying to establish a relation between their previously acknowledged standard, viz., the Brown-Duvel method, and the electric meter, it was found the former varied farther from the true moisture than the then new instrument. Also, the latter gave an instantaneous reading whereas the former required laboratory methods and considerable time.

To further check the accuracy of a series of these meters, similar samples of grain having various moisture contents were sent to five different laboratories in as many different cities for testing. Although these tests were run by different operators, a compilation showed an error of less than 0.1 per cent indicating the possibilities of standardization.

The checking of lumber moisture by similar instruments has proved so valuable that several large eastern consumers insist that each board show evidence of testing needles being used. While these last remarks have little to do with the pulp and paper problem, they serve to show how similar instruments have been received by industry.

### Conclusion

The Electric Moisture Meter for paper is a manual instrument capable of making tests at the rate of two tests per minute, with a remarkable degree of accuracy.

Due to its simplicity and portability, it will make possible the rapid checking of shipments of paper stock both by the manufacturer and the consumer.

Uniformity of moisture content across the sheet can be readily checked by the backtender which should eventually lead to improved control of this condition.

Finally, it is a new tool for the research department and will help to open up new avenues of approach to the problems that must be solved to eliminate guesswork from pulp and paper making.

# A Brief Study of Some Old Papers*

By W. V. Torrey[1] and E. Sutermeister[2]

For quite a number of years there has been much discussion of the permanence and durability of paper and fears have been expressed that records printed on modern papers, not especially prepared for a long and honorable life, would be entirely lost to posterity. In reviewing the situation it is found that there are two chief factions in the paper making field, one of which believes that high grade rag stock is absolutely essential for permanence while the other is attempting to bolster up its courage and sales by claiming that "purified" wood fiber is "just as good." In most cases it is not difficult to tell which side of the fence a concern is on by noting the nature of its products and the materials it uses.

In the case of sulphite fiber very little actual evidence of the permanence of the paper has been collected because of the relatively short time such fibers have been used. With the purified wood fibers it is even worse, for they have been on the market only a few years, so any claims for their permanence must be based on argument and analogy. The advocates of rag stock have the advantage that their material has been used for a sufficient length of time to prove that papers made from it may have good permanence. On the other hand there is much evidence that many recent papers made from rag stock have been pitifully short lived, so evidently there are other factors entering the problem besides the mere question of whether the fibers were prepared from rags.

At this point the question was raised of how to specify the quality of the rag stock and after considerable study the alpha cellulose content was generally accepted as a criterion. It has been found that fiber from new rags, such

* Received March 1, 1933.

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[2] Member TAPPI, chief chemist, S. D. Warren Company.

as shirt cuttings, contains much more alpha cellulose than rag fiber from the grades known as thirds and blues. Also the alpha cellulose content of purified wood fiber is much higher than that of most of the ordinary bleached sulphites, and some of the purified wood fibers may have more alpha cellulose than the poorer grades of rag fiber.

Having reached this point the argument appears to have been that old papers had proved themselves permanent; old papers were made of rag stock; high grade rag stock contained a high percentage of alpha cellulose; therefore fibers with a high alpha cellulose content would make permanent paper. This sort of argument neglects the mechanical and chemical changes which have accompanied the change from hand made to machine made paper and from the starch sized old papers to rosin sized modern products. It is believed that some of these factors are of such vital importance that they far over-shadow the question of the alpha cellulose content of the fibers, but it is not desired to discuss them here.

Since it is claimed that alpha cellulose and permanence are closely related, and since it is stated by the Bureau of Standards that the alpha cellulose content and copper number are only slightly altered by actual aging, it was felt that tests on some old papers would be very interesting. A number of samples were therefore obtained from Dard Hunter, through F. C. Clark, and from these the following were selected for testing:

No. 1—Chinese, Sung Dynasty. This sheet probably from the period of Hein P'ng, 998-1004 A. D. About 925 years old.

No. 8—Chinese, circa 1662-1723. About 235 years old.

No. 9—Chinese, Ming Dynasty. Period of Hung Wu (circa 1379). About 550 years old.

No. 13—Swiss paper. The printing from 1496, paper probably several years earlier. About 435 years old.

No. 14—European. 16th, 17th and 18th century.

Most of these samples were in an excellent state of preservation and would apparently be good for many years more. The one in the poorest condition was No. 1, but this was torn and discolored only on the edges and the center of the sheet was in fine condition.

All of the samples were so small that only a few tests could be made and smaller samples than usual had to be employed in all analyses. No check tests could be made for alpha cellulose and copper number, but in spite of this it is believed that no errors of any magnitude have crept in.

SIZING. All samples were sufficiently sized so that pen marks made with ordinary writing ink did not feather to any appreciable extent. So far as this characteristic is concerned all could be used for writing, which is rather noteworthy considering the thinness of some of the papers.

Starch was tested for and found to be present only in No. 9, and then only in small amount. It appeared to be a surface treatment with cooked starch.

#### Fibers and Beating

No. 1. The fibers resemble modern soda pulps in the way they stain. They appear to have been derived from some sort of grass as they contain some pith cells, spiral cells, serrated cells with very fine teeth and a few large cells resembling the ducts from deciduous woods.

No. 8. The fibers are very long and much coarser than manila hemp. They show a few nodes or thickenings and a distinct tendency to split. Characteristic cells seem to be absent. The staining of these fibers is quite variable, yellow, blue and red brown being noted, indicating characteristics similar to lignified tissues, soda fibers and rag fibers. It is probable that this was made from some sort of bark.

No. 9. This is a very long, smooth fiber, which is not much shortened or split in its preparation. It shows a few slight cross markings and in many respects resembles ramie.

No. 13. All rag stock, probably linen or hemp. A few lignified fibers are present. These fibers are cut very short and extremely sharply. Many show ends cut unusually square across, while part are somewhat split.

No. 14. All rag stock, probably linen or hemp. The fibers are not as short as in No. 13 and are more variable in length. They are also much more split up and broomed out than No. 13.

In the following table the moisture is based on the sample after exposure to ordinary room conditions. The ash in both the paper and the alpha cellulose is based on the bone dry sample, and the alpha cellulose and copper number are based on the ash- and moisture-free sample.

| Sample No. | 1 | 8 | 9 | 13 | 14 |
|---|---|---|---|---|---|
| Moisture | 7.58 | 6.47 | 6.60 | 5.28 | 5.42 |
| Ash in paper | 2.48 | 2.80 | 3.00 | 2.67 | 1.30 |
| Ash in alpha | 0.77 | 2.14 | 0.59 | 0.56 | 0.38 |
| Alpha cellulose | 81.4 | 64.7 | 84.4 | 82.6 | 87.3 |
| Copper No. | ... | 6.23 | ... | 3.40 | 3.66 |

No attempt was made to analyse the ash from the original paper but it was noticed that that from both No. 13 and No. 14 was strongly alkaline to phenolphthalein. That from No. 13 contained a little alumina and much calcium while in No. 14 the proportions seemed to be reversed.

If it is correct that natural aging does not materially alter the alpha cellulose content or the copper number of fibers, then it must be assumed that the fibers in these papers were low in alpha cellulose when first used. It would naturally follow that an original high alpha cellulose content is not necessary for paper which is to last for several centuries and that specifications which are based chiefly on this property are likely to be very misleading. It seems highly probable that the chemical characteristics of the paper as a whole, rather than those of the fibrous portion only, are responsible for its permanence or lack of permanence, and it is suggested that a much more complete study of very old papers would throw much light on this problem.

## R. C. Griffin Appointed

The Executive Committee of the Technical Association has announced the appointment of Roger C. Griffin, director of tests, Arthur D. Little Inc., Cambridge, Mass., as general chairman of the TAPPI Testing Division, to replace Edward O. Reed, chief chemist, Crane & Company, Dalton, Massachusetts, who was recently elected to the Executive Committee of the association.

Mr. Griffin was formerly chairman of the TAPPI Non-Fibrous Materials Testing Committee and accomplished much in revising and bringing up to date the testing methods of the association. He has had a long and useful career in the field of materials and chemical analysis and is the author of the best known textbook on "Technical Methods of Analysis," which is used throughout the world.

In his new position Mr. Griffin will have an opportunity to correlate all the work relating to testing procedure in the pulp and paper industry, a work which is of tremendous importance at the present time.

The Technical Association feels fortunate in being able to benefit by the experience and industry of Mr. Griffin. The results of his work during the next few years will place the industry on a very solid footing technically and will lead to the establishing of raw materials specifications to the same extent as enjoyed by other great industries.

# IMPORTS OF PAPER AND PAPER STOCK

## NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

### NEW YORK IMPORTS

WEEK ENDING MAY 20, 1933

CIGARETTE PAPER

Champagne Products Corp., Waukegan, St. Nazaire, 69 cs.; American Tobacco Co., Waukegan, Bordeaux, 150 cs.; American Tobacco Co., Paris, Havre, 50 cs.; Champagne Products Corp., Paris, Havre, 92 cs.; Standard Products Corp., Paris, Havre, 37 cs.; ———, A. Ballin, Hamburg, 5 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., American Merchant, London, 2 bls., 1 cs.

NEWS PRINT

W. H. Bell, Markland, Liverpool, N. S., 3553 rolls; Gilman Paper Co., Skagern, Norrkoeping, 892 rolls; Brooklyn Times, Skagern, Norrkoeping, 420 rolls; Jay Madden Corp., Stuttgart, Bremen, 291 rolls; Parsons & Whittemore, Inc., Stuttgart, Bremen, 138 rolls; Chase National Bank, Drottningholm, Gothenburg, 38 rolls; ———, Stavangerfjord, Oslo, 353 rolls; ———, Stavangerfjord, Oslo, 64 rolls; Jay Madden Corp., City of Fairbury, Wiborg, 376 rolls.

PRINTING PAPER

F. C. Strype, Statendam, Rotterdam, 3 cs., 7 rolls; Steiner Paper Corp., Statendam, Rotterdam, 5 cs; International F'd'g Co., Statendam, Rotterdam, 17 cs.; C. A. Redden, American Merchant, London, 14 rolls; E. Dietzgen & Co., A. Ballin, Hamburg, 23 cs.

WRAPPING PAPER

Heemsoth Basse & Co., Statendam, Rotterdam, 27 bls.; Borden Riley Paper Co., Statendam, Rotterdam, 4 cs.

PACKING PAPER

C. Steiner, Statendam, Rotterdam, 14 bls.

FILTER PAPER

H. Reeve Angel & Co. Inc., American Merchant, London, 13 bls.; Orbis Products Trading Co., Exeter, Marseilles, 1 ble.

FILTER MASS

H. Reifenberg, A. Ballin, Hamburg, 60 cs., 30 bls.; P. H. Petry & Co., A. Ballin, Hamburg, 110 bls.

SURFACE COATED PAPER

Gevaert Co. of America, Pennland, Antwerp, 33 cs.; Globe Shipping Co., Stuttgart, Bremen, 105 cs., 5 crates; Hensel Bruckman & Lorbacher, Stuttgart, Bremen, 1 cs.

METAL COATED PAPER

Globe Shipping Co., A. Ballin, Hamburg, 65 cs.

COATED PAPER

Chas. Happel, A. Ballin, Hamburg, 3 cs.

BASIC PAPER

P. Puttmann, Pennland, Antwerp, 1 cs.

PHOTO PAPER

Medo Photo-Supply Co., Berengaria, Southampton, 1 cs.

PARCHMENT PAPER

Dingelstedt & Co., Stuttgart, Bremen, 7 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Georgic, Liverpool, 9 cs. (duplex); Sellers Transportation Co., A. Ballin, Hamburg, 6 cs.; Sellers Transportation Co., Bremen, Bremen, 17 cs.; Phoenix Shipping Co., Bremen, Bremen, 1 cs.

TISSUE PAPER

F. C. Strype, Georgic, Liverpool, 5 cs.; Columbia Carbon & Ribbon Manfg. Co., American Merchant, London, 1 cs.

STENCIL PAPER

———, A. Ballin, Hamburg, 1 cs.

GUMMED PAPER

G. Gennert, Inc., A. Ballin, Hamburg, 1 cs.

SILK PAPER

Van Oppen & Co., Exeter, Marseilles, 15 cs.

CARD BOARDS

W. T. Rawleigh Co., Exeter, Marseilles, 6 cs.; American Express Co., A. Ballin, Hamburg, 20 cs.

IVORY BOARDS

R. Wilson Paper Corp., Statendam, Rotterdam, 26 rolls.

PAPER BOARD

Colmar Paper Corp., Pennland, Antwerp, 6 cs.

MISCELLANEOUS PAPER

The Borregaard Co. Inc., Drottningholm, Gothenburg, 115 rolls; M. M. Cohen, Drottningholm, Gothenburg, 83 rolls; Kraemer & Co., Drottningholm, Gothenburg, 161 bls.; G. W. Sheldon & Co., Paris, Havre, 6 cs.; Japan Paper Co., Somerville, Kobe, 22 cs.; Watch Tower Bible & Tract Society, A. Ballin, Hamburg, 2 cs.

BAGS, BAGGINGS, ETC.

Castle & Overton, Inc., Bonheur, B. Ayres, 140 bls.

hessian scrap; C. Nelson, Transylvania, Glasgow, 38 bls. rags; E. J. Keller Co. Inc., Pipestone County, ———, 65 bls. rags.

OLD ROPE

Castle Overton, Inc., Kyno, Hull, 78 coils; W. Steck & Co., Kyno, Hull, 94 coils; E. J. Keller Co. Inc., Kyno, ———, 99 coils, 53 bls.; National City Bank, Transylvania, Glasgow, 61 coils; E. J. Keller Co. Inc., Exermont, ———, 166 coils; E. J. Keller Co. Inc., Exeter, ———, 84 coils; S. Birkenstein & Sons, Cypria, Barcelona, 38 coils; Banco Coml Italiana Trust Co., Cristobal, Colon, Coruna, 24 coils; Banco Coml Italiana Trust Co., Cristobal, Colon, Bilbao, 138 coils

CASEIN

———, Eastern Prince, B. Ayres, 255 bags; D. C. Andrews & Co., A. Ballin, Hamburg, 60 bags.

CHINA CLAY

Whitaker Clark & Daniels, Georgic, Liverpool, 390 bags; L. A. Salomon Bro., Georgic, Liverpool, 240 bags, 75 casks.

GLUE STOCK, ETC.

———, Stuttgart, Bremen, 105 bags hide glue; ———, A. Ballin, Hamburg, 118 bags hide glue; ———, A. Ballin, Hamburg, 450 bags bone glue.

WOOD PULP

A. Giese & Son, Statendam, Rotterdam, 50 bls. wood pulp; J. Andersen & Co., United States, Oslo, 420 bls. sulphite, 71 tons; Johaneson Wales & Sparre, Inc., Drottningholm, Gothenburg, 1002 bls. sulphite; E. M. Sergeant & Co., Drottningholm, Gothenburg, 598 bls. kraft soda; J. Andersen & Co., Stavangerfjord, Oslo, 300 bls. sulphite; Castle & Overton, Inc., A. Ballin, Hamburg, 280 bls. wood pulp, 56 tons.

WOOD FLOUR

B. L. Soberski, Stavangerfjord, Frederickstad, 375 bags; ———, Stavangerfjord, Frederickstad, 1345 bags.

WOOD PULP BOARDS

———, Statendam, Rotterdam, 72 bls.; Perkins Goodwin & Co., Stavangerfjord, Oslo, 20 bls.

## BOSTON IMPORTS

WEEK ENDING MAY 20, 1933

International Purchasing Co., Kyno, Hull, 173 coils old rope; E. Butterworth & Co. Inc., Transylvania, Glasgow, 36 bls. paper stock; G. M. Graves Co., American Merchant, London, 70 bls. rags; Crocker Burbank Co., American Merchant, London, 70 bls. waste paper; E. J. Keller Co. Inc., Exeter, ———, 93 coils old rope.

## PHILADELPHIA IMPORTS

WEEK ENDING MAY 20, 1933

Gilman Paper Co., Skagern, Norrkoeping, 557 rolls news print; Perkins Goodwin & Co., Skagern, Gothenburg, 508 bls. kraft pulp; The Borregaard Co. Inc., Skagern, Gothenburg, 167 rolls paper; H. G. Lichtenstein, Waukegan, St. Nazaire, 160 bls. rags; H. G. Lichtenstein, Waukegan, Bordeaux, 481 bls. rags; E. J. Keller Co. Inc., Waukegan, ———, 88 coils old rope; Union Waste Co., Somerville, Kobe, 100 bls. cotton waste; E. J. Keller Co. Inc., Exermont, ———, 74 bls. rags; Castle & Overton, Inc., Cypria, Barcelona, 38 bls. rags; Jay Madden Corp., City of Fairbury, Wiborg, 39 bls. tissue paper;; Lagerloef Trading Co., City of Fairbury, Wiborg, 1733 bls. wood pulp, 346 tons; Castle & Overton, Inc., City of Fairbury, Wiborg, 1048 bls. wood pulp, 209 tons.

## WILMINGTON IMPORTS

WEEK ENDING MAY 20, 1933

The Borregaard Co. Inc., Skagern, Gothenburg, 2500 bls. Chemical pulp; Castle & Overton, Inc., City of Fairbury, Wiborg, 5014 bls. wood pulp, 1002 tons.

## BALTIMORE IMPORTS

WEEK ENDING MAY 20, 1933

Perkins Goodwin & Co., Skagern, Gothenburg, 2794 bls. kraft pulp; Gottesman & Co. Inc., Skagern, Gothenburg, 375 bls. chemical pulp; Chase National Bank, Skagern, Gothenburg, 200 bls. sulphite pulp; Whitaker Paper Co., Skagern, Gothenburg, 84 bls, 18 rolls paper; Congoleum Nairn Co., Waukegan, St. Nazaire, 168 bls. rags; Congoleum Nairn Co., Waukegan, Bordeaux, 1604 bls. rags.

## NEWPORT NEWS IMPORTS

WEEK ENDING MAY 20, 1933

Perkins Goodwin & Co., Skagern, Gothenburg, 3048 bls. kraft pulp, 3388 bls. sulphite; Gottesman & Co. Inc., Skagern, Gothenburg, 310 bls. chemical pulp.

## News Print Production for March

Production of news print in Canada during March 1933 amounted to 137,078 tons and shipments to 140,694 tons, according to the News Print Service Bureau. Production in the United States was 76,566 tons and shipments 77,857 tons, making a total United States and Canadian news print production of 213,644 tons and shipments of 218,551 tons. During March, 21,381 tons of news print were made in Newfoundland and 1,478 tons in Mexico, so that the total North American production for the month amounted to 236,503 tons.

The Canadian mills produced 86,306 tons less in the first three months of 1933 than in the first three months of 1932, which was a decrease of 18 per cent. The output in the United States was 63,223 tons or 22 per cent less than for the first three months of 1932, in Newfoundland 4,932 tons or 7 per cent less, and in Mexico 805 tons more, making a total decrease of 153,656 tons or 18 per cent.

Stocks of news print paper at Canadian mills are figured at 50,872 tons at the end of March and at United States mills 23,005 tons, making a combined total of 73,877 tons compared with 78,784 tons on February 28, 1933.

## Mr. Willson on Future Business

HOLYOKE, Mass., May 23, 1933.—No change in the sales policy of the American Writing Paper Company, Inc., is to be made at present, the official announcement from President Sidney L. Willson being as follows:

"We are not accepting orders for late manufacture at present prices. We would, however, accept orders for immediate manufacture to be billed at once and shipped at a later date. Provided we could cover ourselves on raw materials we would be willing to accept certain types of business at firm prices for shipment within a 90-day period but not beyond this. We have seen some increased demand from our customers during the last two weeks although nothing startling. Some buyers already seem to think it advisable to protect themselves by ordering larger quantities, but there has been no rush to get under cover."

## New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, May 24, 1933.

Sentiment in the local paper market is more optimistic than for some time past. Demand for the various standard grades of paper continues persistent. Sales forces of the leading paper organizations are generally confident regarding the immediate future. The price situation is firmer.

Some improvement was noticed in the news print paper market. Demand from the publishers is more active than of late. Production in the United States, Canada and Newfoundland, is being maintained in sufficient volume to take care of current requirements. Prices remain unchanged.

Steadiness prevails in the paper board market. Box board is in good request. Kraft liner quotations are higher. The fine paper market is displaying strength. Tissues are moving in fairly heavy volume. The coarse paper market is more buoyant and kraft wrapping paper quotations have advanced.

### Mechanical Pulp

The ground wood pulp market is in a sound statistical position. Both domestic and foreign mechanical pulp are in seasonal request. Offerings are not excessive. Prices are generally holding to previously quoted levels, without difficulty, and reports of concessions are scarce.

### Chemical Pulp

Business in the chemical pulp market is quite active at present. All grades are firmer, especially imported and domestic kraft pulp, due mainly to the higher prices now quoted on kraft papers. The opinion is expressed that chemical pulp quotations will advance in the near future if the prevailing activity should continue.

### Old Rope and Bagging

The old rope market is exhibiting a stronger trend. Foreign old manila rope is higher and is now quoted at from $1.70 to $1.80, f.o.b. New York. Small mixed rope is steady. The bagging market is more active. Foreign gunny No. 1 is now offered at from $1.00 to $1.10. Scrap and roofing are firm.

### Rags

Paper mill interest in the domestic rag market has revived. Cotton cuttings are displaying strength and some grades are in good demand from abroad, especially No. 1 white shirt cuttings. Both domestic and imported roofing rags are moving more freely and are bringing higher prices.

### Waste Paper

The paper stock market is more buoyant. Demand from the board mills for the lower grades of waste paper is brisk and prices decidedly firmer. Strictly folded news is now quoted at from 45 cents to 50 cents and No. 1 mixed paper at from 33 cents to 38 cents, both f.o.b. New York. Advances were also registered in old kraft machine compressed bales and white envelope cuttings.

### Twine

Trading in the local twine market is moderately active. Demand for the various grades is mostly along routine lines. Despite the usual severe competition for desirable orders prices are generally well maintained and reports of shading are infrequent.

## Slow Recovery in Indianapolis

INDIANAPOLIS, Ind., May 22, 1933—A slow recovery in the paper business here is predicted. Already there have been some symptoms of increased consumption and prices are steady, with increases in some instances. The banking situation still is far from satisfactory, particularly with regard to the printers. One of the oldest national banks in Indiana, located here and one where a lot of printers had their accounts, still is tied up by Federal ruling. This has hampered the activities of many printers who would have bought stocks during low markets had they been able.

Paper stock men in Indiana, who have been drifting along as best possible, are somewhat encouraged with slightly increased prices being paid by mills. The increases apply just now to the cheapest grades of mixed and old news, but the stock men believe any increase, however small, will be followed later with other increases and that the field will be enlarged. Just now the stock men say that even with increases it hardly pays them to bother collecting cheap paper. However, warehouses are fairly well filled and sales are being made to provide room.

The last week saw a slight decline in demand for news print due largely to flood conditions over almost the entire central and southern sections of the state. Advertisers refused to buy space when their prospective customers, particularly in the smaller communities, could not reach the market. Thus far no actual damage to paper mills have been reported, though in some instances the mills located on smaller rivers have been threatened.

Paper jobbers in this city are hopeful of continually improved conditions. Some demand is seen for the better grades, though the amount of catalogue printing and direct-by-mail advertising is less than it has been in previous years. A fair demand is seen for social stationery due to the approach of the June wedding era. Summer specialties are not moving to a marked degree, however. Continued cool weather during practically all the spring season is responsible.

## Niagara Paper Mills for Sale

The Niagara Paper Mills, of Lockport, N. Y., are offered for sale. This provides a really unusual opportunity to obtain a long established paper mill at an exceedingly low price. This mill is an old and well known one and has achieved an enviable reputation for the quality of its cover, colored specialties and technical paper products. The plant is located in a very strategic position.

Persons interested in this opportunity should address the Secretary of the Chamber of Commerce, Lockport, N. Y.

# Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, May 24, 1933.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3 to 3½ cents per pound, in barrels, at works.

BLEACHING POWDER.—Some improvement was noticed in the bleaching powder market. The contract movement is fairly heavy. Prices are generally steady and unchanged. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market is firm. Domestic casein is quoted at 9 to 9½ cents and finely ground at 10 to 11 cents per pound. Argentine standard ground is selling at 9⅞ cents and finely ground at 10½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Steadiness prevails in the caustic soda market. The contract movement continues seasonal. Solid caustic soda is quoted at from $2.55 to $3.00; while the flake and ground are selling at from $2.95 to $3.00 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is still affected by the fluctuations of foreign currencies. Imported china clay is quoted at from $12 to $17 per ton, ship side; while domestic paper making clay is still selling at from $5 to $12 per ton, at mine.

CHLORINE.—Paper mill demand for chlorine is fairly persistent. The contract movement is regular. Prices are holding to schedule without difficulty. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is more active. The grades of gum rosin used in the paper mills are quoted at from $4.55 to $4.85 per 280 pounds, in barrels, at works; while wood rosin is selling at $3.30 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Conditions in the salt cake market are steadily improving. Salt cake is quoted at from $12.50 to $13.00; chrome salt cake at from $11.50 to $12.50 per ton, at works; while imported salt cake is selling at from $12.50 to $13.00 per ton, on dock.

SODA ASH.—The soda ash market is exhibiting a stronger undertone than of late. Demand is expanding and prices are firmer. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.05; in bags, $1.30; and in barrels, $1.43.

STARCH.—Demand for starch from the paper mills is somewhat broader. The contract movement is normal. Prices remain unaltered. Special paper making starch is quoted at $2.64 per 100 pounds, in bags; and $2.91 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Sentiment in the sulphate of alumina market is better. Prices continue steady and unchanged. Commercial grades are quoted at from $1.25 to $1.46; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Business in the talc market is moderately active. Higher quotations are anticipated in the near future. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at eastern mines; while imported talc is selling at from $18 to $22 per ton, ship side.

# Market Quotations

## Paper

(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Ledgers | 6.50 | @ | 38.00 |
| Bonds | 4.75 | @ | 53.25 |
| Index | 6.00 | @ | 12.00 |
| Writings— | | | |
| Extra Superfine | 6.50 | @ | 15.00 |
| Superfine | 6.25 | @ | 14.75 |
| Tub sized | 4.50 | @ | 7.00 |
| Engine sized | 4.00 | @ | 5.00 |
| Book, Cased— | | | |
| S. & S. C. | 4.25 | @ | 5.00 |
| M. F. | 3.75 | @ | 4.25 |
| Coated and Enamel | 5.00 | @ | 9.00 |
| Lithograph | 5.00 | @ | 9.00 |
| Tissues—Per Ream— | | | |
| White No. 1 | .50 | @ | .70 |
| White No. 2 | .45 | @ | .60 |
| Anti-Tarnish M. G. only | .65 | @ | .70 |
| Colored | .70 | @ | .90 |
| Kraft | .65 | @ | .70 |
| Manila | .55 | @ | .60 |
| Manila— | | | |
| No. 1 Jute | 9.00 | @ | 9.25 |
| No. 2 Jute | 7.75 | @ | 8.50 |
| No. 1 Wood | 4.00 | @ | 5.25 |
| No. 2 Wood | 3.50 | @ | 4.00 |
| Butchers | 3.37½ | @ | — |
| Fibre Papers— | | | |
| No. 1 Fibre | 4.25 | @ | 5.50 |
| No. 2 Fibre | 4.00 | @ | 4.75 |
| Common Bogus | 1.50 | @ | 3.00 |
| Screenings | 2.00 | @ | 3.00 |
| Card Middles | 4.00 | @ | 5.00 |
| Glassine— | | | |
| Bleached, basis 25 lbs., No. 1 | .09¼ | @ | — |
| No. 2 | .11¼ | @ | — |
| Bleached, basis 20 lbs. | .11¼ | @ | — |

(Delivered New York)

| | | | |
|---|---|---|---|
| News, per ton— | | | |
| Roll, contract | 40.00 | @ | — |
| Rolls, spot | 40.00 | @ | — |
| Sheets | 45.00 | @ | — |
| Side Runs | 25.00 | @ | — |
| Kraft— | | | |
| No. 1 Domestic | 4.50 | @ | 4.75 |
| No. 2 Domestic | 2.75 | @ | 3.00 |
| Southern | 2.75 | @ | 3.00 |
| Imported | 2.75 | @ | 3.50 |
| Boards—per ton— | | | |
| News | 32.50 | @ | 35.00 |
| Straw | 29.50 | @ | 31.50 |
| Chip | 30.00 | @ | 32.50 |
| Binders' Boards | 62.00 | @ | 70.00 |
| Kraft Liner | 45.00 | @ | 47.50 |
| Standard 85 Test Jute Liner | 27.75 | @ | 30.00 |
| Sgl. Mla. Lt. Chip | 37.50 | @ | 40.00 |

(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Wood Pulp Boards | 70.00 | @ | 80.00 |

## Mechanical Pulp

(On Dock, Atlantic Ports)

| | | | |
|---|---|---|---|
| No. 1 Imported— | | | |
| Moist | 19.00 | @ | 21.00 |
| Dry | 19.00 | @ | 21.00 |

(F. o. b. Mill)

| | | | |
|---|---|---|---|
| No. 1 Domestic and Canadian | 14.00 | @ | 22.00 |

## Chemical Pulp

(On Dock, Atlantic Ports)

| | | | |
|---|---|---|---|
| Sulphite (Imported)— | | | |
| Bleached | 1.90 | @ | 2.40 |
| Easy Bleaching | 1.60 | @ | 1.75 |
| No. 1 strong unbleached | 1.50 | @ | 1.65 |
| Mitscherlich unbleached | 1.60 | @ | 1.75 |
| No. 2 strong unbleached | 1.35 | @ | 1.40 |
| No. 1 Kraft | 1.25 | @ | 1.40 |
| No. 2 Kraft | 1.10 | @ | 1.15 |
| Sulphate— | | | |
| Bleached | 1.85 | @ | 2.15 |

(F. o. b. Pulp Mill)

| | | | |
|---|---|---|---|
| Sulphite (Domestic and Canadian)— | | | |
| Bleached | 1.75 | @ | 3.75 |
| Easy Bleaching | 1.60 | @ | 1.75 |
| News | 1.40 | @ | 1.65 |
| Mitscherlich unbleached | 2.00 | @ | 2.25 |
| Kraft (Domestic) | 1.25 | @ | 2.75 |

(Delivered Paper Mills)

| | | | |
|---|---|---|---|
| Soda Bleached | 2.00 | @ | — |

## Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New White, No. 1 | 3.80 | @ | 4.25 |
| Silesias No. 1 | 3.00 | @ | 3.25 |
| New Unbleached | 5.25 | @ | 5.75 |
| New Soft Blacks | 2.75 | @ | 3.00 |
| Blue Overall | 2.50 | @ | 3.00 |
| Fancy | 1.25 | @ | 1.50 |
| Washables | 1.00 | @ | 1.25 |
| Mixed Khaki Cuttings | 2.25 | @ | 2.50 |
| O. D. Khaki Cuttings | 2.50 | @ | 3.00 |
| Men's Corduroy | 1.00 | @ | 1.45 |
| New Mixed Blacks | 2.25 | @ | 2.50 |

Old Rags

| | | | |
|---|---|---|---|
| White, No. 1— | | | |
| Repacked | 3.00 | @ | 3.50 |
| Miscellaneous | 2.00 | @ | 2.25 |
| White, No. 2— | | | |
| Repacked | 1.75 | @ | 2.00 |
| Miscellaneous | 1.50 | @ | 1.75 |
| Thirds and Blues— | | | |
| Repacked | 1.50 | @ | 1.75 |
| Miscellaneous | 1.00 | @ | 1.25 |
| Black Stockings | 2.00 | @ | 2.25 |
| Roofing Rags— | | | |
| No. 1 | .60 | @ | .70 |
| No. 2 | .50 | @ | .60 |
| No. 3 | .45 | @ | .50 |
| No. 4 | .40 | @ | .45 |
| No. 5A | .35 | @ | .40 |

## Foreign Rags

New Rags

| | | | |
|---|---|---|---|
| New Dark Cuttings | 1.50 | @ | 1.60 |
| New Mixed Cuttings | 1.60 | @ | 1.70 |
| New Light Silesias | 3.25 | @ | 3.50 |
| Light Flannelettes | 3.00 | @ | 3.25 |
| Unbleached Cuttings | 5.00 | @ | 5.25 |
| New White Cuttings | 4.50 | @ | 4.75 |
| New Light Oxfords | 3.25 | @ | 3.50 |
| New Light Prints | 2.00 | @ | 2.25 |

Old Rags

| | | | |
|---|---|---|---|
| No. 1 White Linens | 5.75 | @ | 6.00 |
| No. 2 White Linens | 5.00 | @ | 5.25 |
| No. 3 White Linens | 4.00 | @ | 4.25 |
| No. 4 White Linens | 2.00 | @ | 2.25 |
| No. 1 White Cotton | 3.75 | @ | 4.00 |
| No. 2 White Cotton | 3.00 | @ | 3.25 |
| No. 3 White Cotton | 2.50 | @ | 2.75 |
| No. 4 White Cotton | 1.50 | @ | 1.60 |
| Extra Light Prints | 2.00 | @ | 2.25 |
| Ord. Light Prints | 1.75 | @ | 1.85 |
| Med. Light Prints | 1.55 | @ | 1.65 |
| Dutch Blue Cottons | 1.50 | @ | 1.80 |
| French Blue Linens | 2.10 | @ | 2.25 |
| German Blue Linens | 1.85 | @ | 2.00 |
| German Blue Cottons | 1.35 | @ | 1.50 |
| Checks and Blues | 1.30 | @ | 1.40 |
| Lindsay Garments | .95 | @ | 1.05 |
| Dark Cottons | .80 | @ | .90 |
| Old Shopperies | .75 | @ | .80 |
| New Shopperies | .70 | @ | .75 |
| French Blues | 1.40 | @ | 1.50 |

## Old Rope and Bagging

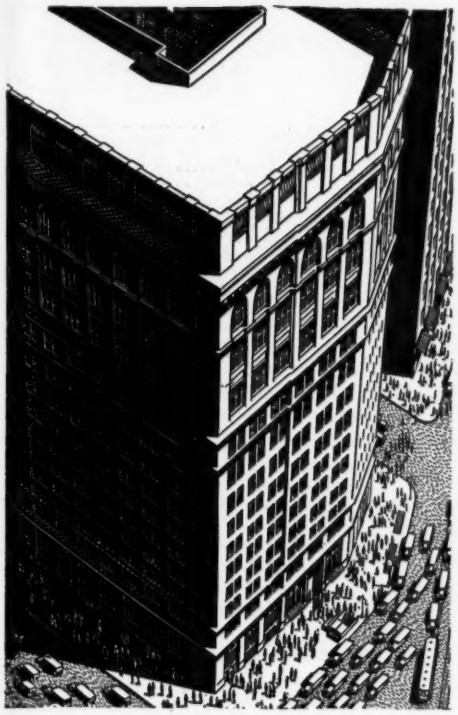
(Prices to Mill f. o. b. N. Y.)

| | | | |
|---|---|---|---|
| Gunny No. 1— | | | |
| Foreign | 1.00 | @ | 1.10 |
| Domestic | 1.00 | @ | 1.10 |
| Wool Tares, light | .90 | @ | 1.00 |
| Wool Tares, heavy | .90 | @ | 1.00 |
| Bright Bagging | .90 | @ | .95 |
| Manila Rope— | | | |
| Foreign | 1.70 | @ | 1.80 |
| Domestic | 1.60 | @ | 1.75 |
| Small Mixed Rope | .60 | @ | .65 |
| New Burlap Cut | 1.25 | @ | 1.50 |
| Hessian Jute Threads— | | | |
| Foreign | 2.60 | @ | 2.75 |
| Domestic | 2.80 | @ | 3.00 |

## Old Waste Papers

(F. o. b. New York)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| White Envelope Cuttings | 2.05 | @ | 2.15 |
| Ordinary Hard White No. 1 | 1.70 | @ | 1.80 |
| Hard White No. 2 | 1.50 | @ | 1.60 |
| Soft White No. 1 | 1.45 | @ | 1.55 |
| Flat Stock— | | | |
| Stitchless | .65 | @ | .70 |
| Overissue Mag | .65 | @ | .70 |
| Solid Flat Book | .55 | @ | .65 |
| Crumpled No. 1 | .45 | @ | .50 |
| Solid Book Ledger | 1.50 | @ | 1.75 |
| Ledger Stock | .45 | @ | .55 |
| New B. B. Chips | .20 | @ | .25 |
| Manilas— | | | |
| New Env. Cut | 1.35 | @ | 1.45 |
| New Cuttings | 1.00 | @ | 1.05 |
| Extra No. 1 old | .80 | @ | .90 |
| Print | .35 | @ | .40 |
| Bogus Wrapper | .30 | @ | .35 |
| Container | .25 | @ | .30 |
| Old Kraft Machine— | | | |
| Compressed bales | .75 | @ | .80 |
| News— | | | |
| No. 1 White News | 1.00 | @ | 1.05 |
| Strictly Overissue | .50 | @ | .55 |
| Strictly Folded | .45 | @ | .50 |
| No. 1 Mixed Paper | .33 | @ | .38 |



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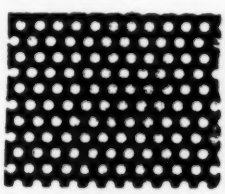
## For Pulp and Paper Mills

STEEL, COPPER, BRASS, BRONZE, MONEL METAL and other Alloys punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.



".065" Round

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# Meyers Regulators DO Mesco Regulate

**STOCK CONSISTENCY**

**Merritt Engineering & Sales Co., Inc.**

**Lockport, N. Y.**

MAY REFERENCE—MUNROE PAPER CORP.

### Twines
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Cotton— | | | |
| B. C., 18 basis | .30 | @ | .32 |
| No. 1 | .20 | @ | .22 |
| No. 2 | .19 | @ | .20 |
| No. 3 | .17 | @ | .18 |
| A. Italian, 18 basis | .36 | @ | .37 |
| Finished Jute— | | | |
| Dark, 18 basis | .18 | @ | .20 |
| Light, 18 basis | .20 | @ | .22 |
| Jute Wrapping, 3-6 Ply— | | | |
| No. 1 | .15½ | @ | .16½ |
| No. 2 | .11¾ | @ | .12¾ |
| Tube Rope— | | | |
| 4-ply and larger | .08¼ | @ | .10¾ |
| Fine Tube Rope— | | | |
| 4-ply | .12¾ | @ | .12¾ |
| 3-ply | .13¾ | @ | .13¾ |
| 2-ply | .14¾ | @ | .14¾ |
| Paper Makers Twine | | | |
| Balls | .09¼ | @ | .11¼ |
| Box Twine, 2-3 ply | .11¾ | @ | .12¾ |
| Jute Rope | .09 | @ | .10 |
| White Hemp | .12¾ | @ | .15¾ |
| Java Sisal— | | | |
| No. 1 Basis | .10 | @ | — |
| No. 2 Basis | .09 | @ | — |
| New Zealand Sisal | .10 | @ | — |
| Sisal Lath Yarn— | | | |
| No. 1 | .12 | @ | .14 |
| No. 2 | .10 | @ | .12 |
| Manila Twine | .23 | @ | .28 |

## CHICAGO

### Paper
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Rag Bond | .30 | @ | .53¼ |
| Water Marked Sulphite Bond | .09 | @ | .12 |
| Sulphite Bond | .04 | @ | .11 |
| Superfine Writing | .18 | @ | .24 |
| No. 1 Fine Writing | .14 | @ | .18 |
| No. 2 Fine Writing | .12 | @ | .14 |
| No. 3 Fine Writing | .07 | @ | .18 |
| No. 1 M. F. Book | .06½ | @ | .07¾ |
| No. 2 M. F. Book | .05¾ | @ | .06¾ |
| No. 1 S.&S.C. Book | .06¾ | @ | .07¾ |
| No. 2 S.&S.C. Book | .05¾ | @ | .06½ |
| Coated Book | .07½ | @ | .12 |
| Coated Label | .07½ | @ | .10 |
| No. 1 Manila | .04¼ | @ | .05¾ |
| No. 1 Fibre | .04¾ | @ | .05¾ |
| No. 2 Manila | .04¼ | @ | .04¾ |
| Butcher's Manila | .03¼ | @ | .03¾ |
| No. 1 Kraft | 3.50 | @ | 4.50 |
| Southern Kraft | 2.62½ | @ | — |
| No. 2 Kraft | 2.62½ | @ | — |
| Wood Tag Boards | .04¾ | @ | .06¼ |
| Sulphite Screenings | .03 | @ | .03¾ |
| Manila Tissue | .07 | @ | .07¾ |
| White Tissue | .07¼ | @ | .07½ |

(Delivered Central Territory)

| | | | |
|---|---|---|---|
| News, per ton— | | | |
| Rolls, contract | 45.00 | @ | — |
| Sheets | 50.00 | @ | — |
| Boards, per ton— | | | |
| Plain Chip | 27.50 | @ | — |
| Solid News | 30.00 | @ | — |
| Manila Lined Chip | 37.50 | @ | — |
| Patent coated | 47.50 | @ | — |
| Container Lined— | | | |
| 85 Test | 50.00 | @ | 55 00 |
| 100 Test | 55.00 | @ | 60.00 |

### Old Papers
(F. o. b. Chicago)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 White Envelope cuttings | 1.50 | @ | 1.55 |
| No. 1 Hard White | 1.40 | @ | 1.45 |
| No. 1 Soft White | 1.00 | @ | 1.10 |
| Ledger & Writings | .55 | @ | .60 |
| Solid Books | .45 | @ | .50 |
| Blanks | 1.00 | @ | 1.05 |
| Krafts | .70 | @ | .80 |
| New Kraft Cuts | 1.15 | @ | 1.25 |
| Manila Env. Cuts | 1.25 | @ | 1.30 |
| Ex. No 1 Manila | .90 | @ | 1.00 |
| Print Manila | .30 | @ | .40 |
| Overissue News | .45 | @ | .50 |
| Old Newspapers— | | | |
| No. 1 | .45 | @ | .50 |
| Mixed Papers— | | | |
| No. 1 | .25 | @ | .30 |
| Roofing Stocks— | | | |
| No. 1 | 30.00 | @ | — |
| No. 2 | 28.00 | @ | — |

## PHILADELPHIA

### Paper
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Bonds | .04 | @ | .40 |
| Ledgers | .06 | @ | .40 |
| Writings— | | | |
| Superfine | .10 | @ | .18 |
| Extra Fine | .15 | @ | .26 |
| Fine | .15 | @ | .26 |
| Fine, No. 2 | .10 | @ | .25 |
| Fine No. 3 | .05½ | @ | .18 |
| Book, M. F. | .04¾ | @ | .07 |
| Book, S. S. & C. | .05 | @ | .07½ |
| Book, Coated | .06 | @ | .16 |
| Coated Lithograph | .06 | @ | .11 |
| Label | .07 | @ | .11 |
| No. 1 Jute Manila | .06 | @ | .09 |
| Manila Sul., No. 1 | .03 | @ | .05 |
| Manila No. 2 | .03 | @ | .04 |
| No. 1 Kraft | .05¼ | @ | .06 |
| No. 2 Kraft | .03¼ | @ | .04¼ |
| Southern Kraft | 2.75 | @ | 4.00 |
| Common Bogus | .03 | @ | .04 |

(Delivered Philadelphia)

| | | | |
|---|---|---|---|
| News Print Rolls | 46.00 | @ | — |
| Straw Board | 32.00 | @ | — |
| News Board | 30.00 | @ | — |
| Chip Board | 30.00 | @ | — |
| Wood Pulp Board | 70.00 | @ | 80.00 |
| Binder Boards— | | | |
| No. 1, per ton | 73.00 | @ | 75.00 |
| No. 2, per ton | 62.00 | @ | 65.00 |
| Carload lots | 60.00 | @ | 65.00 |
| Tarred Felts— | | | |
| Regular | 52.25 | @ | 54.25 |
| Slaters (per roll) | .84 | @ | .94 |
| Best Tarred, 1-ply (per roll) | 1.95 | @ | 2.10 |
| Best Tarred, 2-ply (per roll) | 1 50 | @ | 1.60 |
| Best Tarred, 3-ply | 2.00 | @ | 2.25 |

### Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New White, No. 1 | .03½ | @ | .04 |
| New White, No. 2 | .02½ | @ | .04 |
| Light Silesias | .02½ | @ | .03 |
| Silesias, No. 1 | .03 | @ | .03½ |
| Black Silesias, soft | .02½ | @ | .03 |
| New Unbleached | .05 | @ | .05½ |
| Washable, No. 1 | .01 | @ | .01½ |
| Blue Overall | .03 | @ | .03½ |
| Cottons—According to grades— | | | |
| Washable, No. 2 | .01 | @ | .02 |
| New Blue | .01 | @ | .02 |
| Fancy | .01½ | @ | — |
| New Black Soft | .02 | @ | .03 |
| New Light Seconds | .01 | @ | .02 |
| New Dark Seconds | 1.50 | @ | 1.75 |
| Khaki Cuttings— | | | |
| No. 1 O.D. | .03 | @ | .03½ |
| No. 2 Mixed | .02½ | @ | .03 |
| Corduroy | .02 | @ | .02½ |
| New Canvas | .03½ | @ | .04 |
| New Black Mixed | .02½ | @ | .03 |

### Domestic Rags (Old)

| | | | |
|---|---|---|---|
| White No. 1— | | | |
| Repacked | 2.50 | @ | 3.00 |
| Miscellaneous | 1.75 | @ | 2.00 |
| M. G. | 3.00 | @ | 3.50 |
| Thirds and Blues— | | | |
| Miscellaneous | 1.00 | @ | 1.25 |
| Repacked | 1.50 | @ | 1.75 |
| Black Stockings (Export) | 2.00 | @ | 3.50 |
| Roofing Stock— | | | |
| Foreign No. 1 | .50 | @ | .75 |
| Repacked | .70 | @ | .80 |

### Bagging
(F. o. b. Phila.)

| | | | |
|---|---|---|---|
| Gunny, No. 1— | | | |
| Foreign | 1.25 | @ | 1.50 |
| Domestic | 1.50 | @ | — |
| Manila Rope | 2.00 | @ | 2.25 |
| Sisal Rope | 1.25 | @ | 1.50 |
| Mixed Rope | 1.00 | @ | 1.10 |
| Scrap Burlaps— | | | |
| No. 1 | 1.25 | @ | 1.50 |
| No. 2 | .80 | @ | 1.00 |
| Wool Tares, heavy | 2.75 | @ | — |
| Mixed Strings | 1.15 | @ | 1.25 |
| No. 1 New Light Burlap | 2.25 | @ | 2.50 |
| New Burlap Cuttings | 2.00 | @ | 2.25 |

### Old Papers
(F. o. b. Phila.)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 Hard White | 1.65 | @ | 1.70 |
| No. 2 Hard White | 1.50 | @ | 1.60 |
| No. 1 Soft White | 1.40 | @ | 1.45 |
| No. 2 Soft White | 1.10 | @ | 1.15 |
| No. 1 Mixed | .50 | @ | .60 |
| No. 2 Mixed | .40 | @ | .50 |
| Solid Ledger Stock | 1.20 | @ | 1.25 |
| Writing Paper | .70 | @ | .75 |
| No. 1 Books, heavy | .55 | @ | .60 |
| No. 2 Books, light | .40 | @ | .45 |
| No. 1 New Manila | 1.20 | @ | 1.25 |
| No. 1 Old Manila | .60 | @ | .65 |
| Print Manila | .40 | @ | .50 |
| Container Manila | .40 | @ | .50 |
| Old Kraft | .80 | @ | .85 |
| Common Paper | .30 | @ | .35 |
| No. 1 Mixed Paper | .30 | @ | .35 |
| Straw Board, Chip | .25 | @ | .30 |
| Binders Board Chip | .30 | @ | .35 |
| Corrugated Board | .40 | @ | .50 |
| Overissue News | .50 | @ | .60 |
| Old Newspaper | .40 | @ | .50 |

## BOSTON

### Paper
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Ledgers— | | | |
| Sulphite | .06 | @ | .12½ |
| Rag Content | .12 | @ | .30 |
| All Rag | .36 | @ | .52½ |
| Bonds— | | | |
| Sulphite | .05¾ | @ | .11½ |
| Rag Content | .12 | @ | .30 |
| All Rag | .36 | @ | .65 |
| Writings | .06½ | @ | .20 |
| Superfines | .11 | @ | .31 |
| Book, Super | .06 | @ | .09 |
| Book, M. F. | .05½ | @ | .08½ |
| Book, Coated | .08½ | @ | .18 |
| Coated Litho | .09 | @ | .12 |
| Label | .09½ | @ | .15 |
| Jute Manila No. 1 | .11 | @ | .13 |
| Manila, Sul. No. 1 | .04¾ | @ | .06½ |
| Manila, Sul. No. 2 | .03¾ | @ | .04½ |
| No. 1 Kraft | — | @ | .04¾ |
| No. 2 Kraft | .02¾ | @ | — |

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Southern Kraft | .02¾ | @ | — |

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

| | | | |
|---|---|---|---|
| Common Bogus | .02 | @ | .02¾ |

(Delivered New England points)

| | | | |
|---|---|---|---|
| News Print, rolls | 44.50 | @ | — |
| Straw Board, rolls | .009 | — | @35.00 |
| Straw Board in Sheets, basis 35s to 70s | — | @ | 40.00 |
| Filled News Board | 30.00 | @ | — |
| Chip Board | 27.50 | @ | — |
| Chip Board (Creasing) | 27.50 | @ | 30.00 |
| Single Manila Lined Chip | — | @ | 37.50 |
| Single White, Patent Coated News Board—Bender | 45.00 | @ | 55.00 |
| Wood Pulp Board | 70.00 | @ | 75.00 |
| Binder Boards | 62.00 | @ | 75.00 |

### Old Papers
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 Soft White | 1.25 | @ | 1.40 |
| No. 1 Old Manila | .50 | @ | .60 |
| No. 1 Mixed | .60 | @ | .70 |
| No. 2 Mixed | .40 | @ | .50 |
| Solid Ledger Books | 1.20 | @ | 1.40 |
| Overissue Ledger Stock | 1.15 | @ | 1.30 |
| Mixed Ledgers | .60 | @ | .70 |
| No. 1 Books, heavy | .55 | @ | .65 |
| No. 1 Books, light | — | @ | .30 |
| Crumpled Stitchless Book Stock | .50 | @ | .60 |
| Manila Env. Cuttings | 1.25 | @ | 1.30 |
| No. 1 Old Manila | .50 | @ | .60 |
| White Blank News | .90 | @ | .95 |
| No. 1 Kraft | .80 | @ | .85 |
| Manila | .80 | @ | .90 |
| No. 1 Mixed Papers | .20 | @ | .22½ |
| Print Manila | .30 | @ | .40 |
| Overissue News | .35 | @ | .45 |
| Old Newspapers | .32½ | @ | .37½ |
| Box Board, Chip | .17½ | @ | .20 |
| Corrugated Boxes | .25 | @ | .30 |
| Screening Wrappers | .25 | @ | .32½ |

### Bagging
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Manila Rope— | | | |
| Foreign | 1.55 | @ | 1.70 |
| Domestic | 1.55 | @ | 1.75 |
| Transmission Rope | 1.20 | @ | — |
| Mixed Strings | .25 | @ | .30 |
| Jute Rope | .85 | @ | — |
| Jute Carpet Threads | .25 | @ | .30 |
| Gunny No. 1— | | | |
| Foreign | 1.20 | @ | — |
| Domestic | .70 | @ | .80 |
| Bleachery Burlap | 1.75 | @ | 2.00 |
| Scrap Burlap | .60 | @ | .70 |
| No. 1 Scrap Burlap | .70 | @ | .75 |
| Scrap Sisal | .80 | @ | 1.00 |
| Scrap Sisal for shredding | — | @ | .90 |
| Wool Tares, heavy | .75 | @ | .85 |
| New Burlap Cutting | .75 | @ | .90 |
| Australian Wool Pouches | 1.75 | @ | 2.00 |
| Heavy Baling Bagging | .90 | @ | 1.25 |
| Paper Mill Bagging | .35 | @ | .40 |
| Bagging No. 2 | .25 | @ | .35 |
| No. 1 Burlap | 1.75 | @ | 2.00 |

### Domestic Rags (New)
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New Light Prints | — | @ | .01½ |
| New White No. 1 | .03¾ | @ | — |
| New White No. 2 | .02¾ | @ | .03¼ |
| Silesias No. 1 | — | @ | .03 |
| New Black Silesias | .02½ | @ | .02¾ |
| New Unbleached | — | @ | .04½ |
| Fancy | — | @ | .02½ |
| Washable | — | @ | .01½ |
| Cottons—According to grades— | | | |
| Blue Overalls | — | @ | .03¼ |
| New Black, soft | .04 | @ | .04½ |
| Khaki Cuttings | .03 | @ | .03¼ |
| O. D. Khaki | .03 | @ | .03¼ |
| Corduroy | .01¾ | @ | .02 |
| New Canvas | — | @ | .03 |
| B.V.D. Cuttings | .04 | @ | .04¼ |

### Domestic Rags (Old)
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Canvas | .04½ | @ | — |
| White No. 1— | | | |
| Repacked | 3.00 | @ | 3.50 |
| Miscellaneous | 1.50 | @ | 1.75 |
| White No. 2— | | | |
| Repacked | .01½ | @ | .01¾ |
| Miscellaneous | .01½ | @ | .01¾ |
| Twos and Blues | .90 | @ | 1.00 |
| Thirds and Blues— | | | |
| Repacked | .75 | @ | .85 |
| Miscellaneous | .70 | @ | .75 |
| Black Stockings | 2.00 | @ | 2.25 |
| Roofing Stock— | | | |
| No. 1 | .50 | @ | .55 |
| No. 2 | .45 | @ | .50 |
| No. 3 | .35 | @ | .40 |

### Foreign Rags
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Dark Cottons | .80 | @ | 1.00 |
| New No. 1 White Shirt Cuttings | 3.75 | @ | 4.00 |
| Dutch Blues | 1.25 | @ | 1.50 |
| New Checks & Blues | 2.25 | @ | 2.50 |
| Old Fustians | — | @ | .75 |
| Old Linsey Garments | 1.05 | @ | — |

## TORONTO

### Paper
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Bond— | | | |
| No. 1 Sulphite | .09¾ | @ | — |
| No. 2 Sulphite | .08 | @ | — |
| No. 1 Colored | .10½ | @ | — |
| No. 2 Colored | .08½ | @ | .10½ |
| Ledgers (sulphite) | | | |
| Ledgers, No. 1 | .34½ | @ | — |
| Ledgers, No. 2 | .25½ | @ | — |
| Writing | .09 | @ | .09½ |
| Book— | | | |
| No. 1 M. F. (Carloads) | 6.20 | @ | — |
| No. 3 M. F. (Carloads) | 5.70 | @ | — |
| No. 4 M. F. (carloads) | 4.75 | @ | — |
| No. 1 S. C. (carloads) | 6.65 | @ | — |
| No. 3 S. C. (carloads) | 6.20 | @ | — |
| No. 4 S. C. (carloads) | 5.20 | @ | — |
| No. 1 Coated and Litho | 12.00 | @ | — |
| No. 2 Coated and Litho | 10.50 | @ | — |
| No. 3 Coated and Litho | 9.50 | @ | — |
| Coated tinted | 14.00 | @ | — |
| Wrapping— | | | |
| Rag Brown | 4.25 | @ | — |
| White Wrap | 2.00 | @ | — |
| "B" Manila | 4.75 | @ | — |
| No. 1 Manila | 5.25 | @ | — |
| Fiber | 5.25 | @ | — |
| Kraft, M. F. | 5.75 | @ | — |
| Kraft No. 2 | 5.25 | @ | — |

(F.O.B. Cars Toronto)

| | | | |
|---|---|---|---|
| News, per ton— | | | |
| Rolls (contract) | 45.50 | @ | — |
| Sheets | 50.50 | @ | — |

### Pulp
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Ground Wood | 18.00 | @ | 20.00 |
| Sulphite easy bleaching | 40.00 | @ | — |
| Sulphite, news grade | 38.00 | @ | — |
| Sulphite, bleached | 45.00 | @ | 50.00 |
| Sulphate | 50.00 | @ | — |

### Old Waste Paper
(In carload lots, f. o. b. Toronto)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| White Env. Cut | 1.80 | @ | — |
| Soft White | 1.40 | @ | — |
| White Blk. News | 1.25 | @ | — |
| Book and Ledger— | | | |
| Flat Magazine and Book Stock (old) | .90 | @ | — |
| Light and Crumpled Book Stock | .80 | @ | — |
| Ledgers and Writings | 1.00 | @ | — |
| Manilas— | | | |
| New Manila Cut | 1.25 | @ | — |
| Printed Manilas | .55 | @ | — |
| Fancy Shirt Cuttings | .02¼ | @ | .02½ |
| Kraft | 1.25 | @ | — |
| News and Scrap— | | | |
| Strictly Overissue | .50 | @ | — |
| Strictly Folded | .50 | @ | — |
| No. 1 Mixed Paper | .40 | @ | — |

### Domestic Rags
(Price to mills, f. o. b. Toronto)

| | | | |
|---|---|---|---|
| No. 1 White Shirt Cuttings | .04¼ | @ | .04¾ |

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